

CHAPTER 5

CUMULATIVE IMPACTS AND OTHER CONSIDERATIONS

5.1 INTRODUCTION

The analysis presented in this chapter, as required by CEQ regulations (40 CFR 1500-1508), addresses the potential cumulative impacts associated with Alternatives 1, 2, and 4 (action alternatives). Impacts associated with providing consent to geothermal leasing of National Forest System lands in the planning area has a broader context that takes into account the full range of impacts from reasonably foreseeable future actions in the whole planning area. The CEQ regulations state that the cumulative impact analysis should include the anticipated impacts on the environment resulting from “the incremental impact of [an] action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over time” (40 CFR 1508.7).

Sections 5.2.2 through 5.2.5 describe the methodology, regions of interest, time frame, and reasonably foreseeable future actions for the cumulative impact assessment. Section 5.3 describes the types of actions and trends occurring on all (federal and nonfederal) lands in the project area. The cumulative impact analyses for each resource and resource use is presented in Section 5.4. Analysis on other type of impacts is provided in Section 5.5, unavoidable impacts; Section 5.6, short-term uses and long-term productivity; and Section 5.7, irreversible and irretrievable commitment of resources.

5.2 WHAT IS THE PROCESS OF ASSESSING CUMULATIVE IMPACTS?

The cumulative impact analysis in the following sections builds upon the analyses of the direct and indirect impacts of anticipated future actions to be taken consistent with the project alternatives. These analyses are presented in Chapter 4. In addition to those incremental impacts of anticipated future actions

to be taken consistent with the Proposed Action, the cumulative impact analysis considers other past, present, and reasonably foreseeable future actions' impacts on natural resources, ecosystems, and human communities in the planning area.

5.2.1 Methods and Assumptions

The cumulative effects analysis focuses on the natural resources, ecosystems, and human communities that could be affected by the impacts from the Proposed Action (providing consent for geothermal leasing of National Forest System lands) in combination with other past, present, and reasonably foreseeable future actions, regardless of who undertakes them.

The CEQ discusses the assessment of cumulative effects in detail in its report, "Considering Cumulative Effects under the National Environmental Policy Act" (CEQ 1997). Because the allocation of lands as open or closed and the decision to lease do not have any direct impacts (see discussion at Section 4.1.1, Methods of Impact Analysis), the cumulative analysis focuses primarily on the cumulative impacts associated with the development of geothermal resources. That is, this analysis considers future actions anticipated to be taken consistent with the alternatives analyzed in this EIS because it is more informative for the decision-making process. Based on the CEQ's report and this approach to informing the decision-making process, the following methodology was developed for assessing cumulative impacts:

1. The geographic scope (i.e., regions of influence) is defined for the analysis. The regions of influence encompass the areas of affected resources and the distances at which impacts associated with anticipated future actions to be taken consistent with the Proposed Action may occur. The regions of influence are discussed in Section 5.2.3.
2. The time frame for the analysis is defined. The temporal aspect of the cumulative impacts analysis generally extends from the past history of impacts on each resource through the anticipated life of the project (and beyond, for resources having more long-term impacts). The time frame of the actions to be evaluated in the cumulative analysis is presented in Section 5.2.4.
3. Past, present, and reasonably foreseeable future actions are identified. These include projects, activities, or trends that could impact human and environmental resources within the defined regions of influence during the defined time frame. Past and present actions are generally accounted for in the analysis of direct and indirect impacts for each resource and are carried forward to the cumulative impacts analysis. Foreseeable future actions are described by type in Section 5.3.

4. The baseline conditions of resources are characterized. Baseline characteristics are described in the affected environment sections for each resource in Chapter 3.
5. Direct and indirect impacts on resources from anticipated future actions that may be taken consistent with the respective alternatives are characterized at a level appropriate for a programmatic analysis such as presented in this EIS. Direct impacts are caused by anticipated future actions to be taken consistent with implementing an alternative, and they occur at the same time and place as those actions. Indirect impacts are caused by anticipated future actions to be taken consistent with the alternative but occur later in time or farther in distance from those actions and are still reasonably foreseeable. These impacts are detailed in the environmental consequences sections of Chapter 4 for each resource.
6. The potential impacting factors of each past, present, or reasonably foreseeable future action or activity are determined. Impacting factors are the mechanisms by which an action affects a given resource. Anticipated future actions to be taken consistent with the Proposed Action could also generate factors that could impact resources; these individual contributions form the basis of the cumulative impacts analysis.
7. The cumulative impact assessment focuses on past, current, and reasonably foreseeable future actions, including commercial uses, regardless of who undertakes them and regardless of where they are located in the planning area. In other words, the assessment considers other uses on all lands in the planning area regardless of land ownership. The descriptions of the other reasonably foreseeable future actions considered (Section 5.2.4) address all lands and, as such, the data include public and National Forest System lands. The data do not specifically break out public and National Forest System lands.
8. Cumulative impacts on resources are evaluated by considering the impacting factors for each resource and the incremental contribution of anticipated future actions to be taken consistent with implementing the Proposed Action and other action alternatives to the cumulative impact. The analysis for each resource is presented in Section 5.4.

In cases where the contributions of individual actions to an impacting factor were uncertain or not well known, a qualitative evaluation of cumulative impacts was necessary. A qualitative evaluation covers the locations of actions, the times they would occur, the degrees to which the impacted resource is at risk, and the potential for long-term and/or synergistic effects.

5.2.2 Regions of Influence

To determine which other actions should be included in a cumulative impacts analysis, the regions of influence must first be defined. These regions should not be limited to only the geographic areas of resources addressed by the project, but they should also take into account the distances that cumulative impacts may travel and the regional characteristics of the affected resources.

Because this EIS addresses consent to leasing of National Forest System lands at a programmatic level, the region of influence for each resource evaluated by the cumulative impacts analysis is, unless otherwise noted, the planning area. Of all the geothermal uses, commercial electrical generation would have the greatest impacts (see Chapter 4). In general, most commercial electrical generation in the near term would occur in the Bridgeport Geothermal Decision Area.

5.2.3 Time Frame of the Cumulative Projects

The time frame of the cumulative impact analysis incorporates the sum of the effects of anticipated future actions consistent with the implementation of an alternative in combination with other past, present, and future actions, because impacts may accumulate or develop over time. The future actions described in this analysis are those that are “reasonably foreseeable;” that is, they are ongoing (and will continue into the future), are funded for future implementation, or are included in firm near-term plans. The reasonably foreseeable time frame for future actions evaluated in this cumulative analysis is 20 years from the consent to geothermal leasing. While it is difficult to project reasonably foreseeable future actions (or trends) beyond a 20-year time frame, it is acknowledged that the effects identified in the cumulative impacts analysis will likely continue beyond the 20-year horizon.

5.2.4 What are the Types of Major Actions?

The following section provides a description of the types of major actions and trends occurring on federal and nonfederal lands in the project area.

Oil and Gas Exploration, Development, and Production

The 2008 Geothermal PEIS outlines the number of barrels of crude oil for various states. Nevada produced 572,000 barrels of crude oil in 2001 (Nevada Bureau of Mines and Geology 2002). This number decreased to 447,000 barrels by 2006 (Nevada Bureau of Mines and Geology 2007). However, there are no oil or gas operations or exploration within the planning area and no reasonably foreseeable future actions for oil or gas.

Natural Gas

Natural gas production in Nevada is also limited. Table 5-1 of the 2008 Geothermal PEIS shows natural gas production in Nevada between 2001 and 2006. There were 7 million cubic feet produced in Nevada in 2001. This number declined to 5 million cubic feet by 2006. There is no existing natural gas

production in the planning area and no reasonably foreseeable future actions for natural gas production.

Mineral Exploration, Development, and Production (Extraction)

Factors associated with coal and other mineral exploration and development that can produce impacts may include exploratory drilling and trenching and access road and helipad construction. Factors associated with mineral production (extraction) that can produce impacts may include:

- Surface mines;
- Underground mines;
- Access roads;
- Processing (beneficiation) plants;
- Transportation (e.g., railroads);
- Solid waste (overburden, waste rock, and tailings); and
- Site reclamation and rehabilitation.

Leasable Minerals

Leasable minerals include oil and gas; oil shale; geothermal resources; coal; potash; phosphate; sodium; native asphalt; gilsonite; sulfur in New Mexico; gold, silver, and quicksilver in certain private land claims; and silica deposits in certain parts of Nevada (BLM 2006c). They are leased on public lands under the Mineral Leasing Act of 1920. Leases to these resources on public lands are obtained through a competitive bidding process. There are two geothermal exploration projects in the Bridgeport Decision Area and one geothermal project that have been approved north of and adjacent to the Austin Decision Area. These projects are described under Renewable Energy actions. In addition, geothermal lease nominations have been submitted to the BLM for each of the decision areas. There are currently no other leasable minerals within the planning area.

Locatable Minerals

The BLM administers mineral estate on almost 700 million acres of lands in the US, including its own lands, as well as other lands, such as National Forest System lands. Economic production of mineral resources on these lands includes locatable, leasable, and salable solid minerals.

Locatable minerals can be obtained by filing a mining claim and include both metallic minerals (e.g., gold, silver, lead) and nonmetallic minerals (e.g., fluor spar, asbestos, mica, gemstones). They are defined under the General Mining Law of 1872. Locatable minerals are those that are neither leasable minerals nor saleable mineral materials. Hardrock (locatable) minerals include, but are not limited to, copper, lead, zinc, magnesium, nickel, tungsten, gold, silver, bentonite, barite, feldspar, fluor spar, and uranium (BLM 2006c). In 2007, there were

341,012 active mining claims on file with the BLM, with the highest number (197,843) in Nevada (BLM 2006c). This represents a 70-percent increase from 2006 and a 50-percent increase from 2001 (US DOE and BLM 2007). As stated in Chapter 3, Affected Environment, there are approximately 25 active locatable minerals exploration and mining projects within the Bridgeport Decision Area.

Saleable Mineral Materials

Saleable mineral materials include common varieties of sand, gravel, stone, pumice, pumicite, cinders, and ordinary clay. Use of saleable minerals on public lands requires either a sales contract or a free use permit. The Forest Service administers the disposal of saleable minerals from National Forest System lands.

Renewable Energy Development

Renewable energy resources are naturally replenished in a relatively short period of time and include geothermal energy, hydropower, solar energy, wind energy, and biomass. Renewable energy is used for electricity generation, heat in industrial processes, heating and cooling buildings, and transportation fuels. In 1850, about 90 percent of energy consumed in the US was from renewable energy resources. Now the US is heavily reliant on nonrenewable fossil fuels: coal, natural gas, and oil. In 2006, almost seven percent of all energy consumed, and about nine percent of total electricity production, was from renewable energy sources. Chapter 1 summarizes the geothermal energy and use from the 2008 Geothermal PEIS. As of January 2010, there were 552 leases in Nevada comprising more than 1.1 million acres, including 14 geothermal power plants with a total generation capacity of 342 MW.

Four geothermal projects proposed or undergoing exploration in or adjacent to the planning area include the Barren Hills, Aurora, Whiskey Flat and McGinness Hills. According to the RFD, Section 2.7, the Aurora, Wilson Hot Springs, and yet-to-be identified areas in the Bridgeport Geothermal Decision Area are reasonably expected to see geothermal development activity in the foreseeable future up to a total of 228 MW. The RFD for the entire planning area would be 240 MW by 2025. Impacts associated with the RFD scenario were addressed under each of the alternatives in Chapter 4.

The McGinness Hills Geothermal Energy Project was approved by the BLM and Forest Service on July 19, 2011. The project is located on land administered by the BLM and the Forest Service 16 miles northeast of Austin, Nevada and is adjacent to the Austin Geothermal Decision Area. The project includes construction and operation of two 45-megawatt binary, air-cooled geothermal power generating facilities; geothermal production and injection well pads and well access roads; geothermal production pipelines; domestic water wells at each power plant; microwave communication towers; and a nine-mile transmission line. The project will encompass 217 acres; 182 acres of BLM-managed public land, 10 acres of National Forest System lands, and 25 acres of private land.

There are no existing or reasonably foreseeable solar, wind, biomass, or hydropower projects within the planning area.

Transmission and Distribution Systems

As stated in Chapter 3, there is one ROW for electric transmission and two communication sites within the planning area. However, the demand for additional energy and electricity is projected to increase the number of ROWs on National Forest System lands in the years to come. Factors associated with utility corridors that can produce impacts may include:

- Use of heavy equipment;
- Transmission lines;
- Substations; and
- Access roads.

There is a project proposal, or reasonably foreseeable future action, for NV Energy's Renewable Transmission Initiative. The project would consist of approximately 537 miles of new overhead electric transmission lines (230 kV, 345 kV and/or 500 kV) and associated facilities in north-central, western, and southern Nevada. The proposed project would be developed to provide transmission service to renewable energy projects in selected Renewable Energy Zones originally identified by Nevada's Renewable Energy Transmission Access Advisory Committee as promising areas for the development of renewable energy generation and to deliver energy from those Renewable Energy Zones to electric markets in Nevada, California and other parts of the Southwestern U.S. The proposed action would include, where feasible, the use of existing transmission lines and planned transmission projects within existing rights-of-way. Although the project is not proposed on National Forest System lands or lands within the planning area, the route includes approximately 356 miles from the Fort Churchill Substation through Esmeralda, Mineral, and Nye Counties to the existing Harry Allen Substation in Clark County. This line could facilitate the transmission of geothermal power produced within the Bridgeport Geothermal Decision Area.

Major Uses of Federal Land

Major uses of federal land that can include factors that may produce impacts include:

- Forest land;
- Grassland pasture and rangeland;
- Cropland;
- Special uses (parks and wildlife areas); and
- Other uses (including commercial).

As shown in Table 5-4 of the 2008 Geothermal PEIS, the major uses of federal and nonfederal land in the US in 2002 were forest-use land, grassland pasture and rangeland, cropland, special uses (parks and wildlife areas), miscellaneous other uses, and urban land. As discussed in Chapter 3, the major land uses within the planning area include recreation and grazing. Other uses managed by the Forest Service include wildlife habitat, fisheries, watersheds, and heritage resource protection and interpretation. Lands surrounding the planning area are primarily non-developed with dispersed residential development and agricultural uses.

Grazing and Rangeland Management

As stated in Table 5-5 of the 2008 Geothermal PEIS, over 76 percent of the land in Nevada is used for grazing. The discussion of land uses in Chapter 3 states that grazing is the primary use of the lands in the planning area. Factors associated with livestock grazing that can produce impacts may include resource conservation (during nonuse periods) and rangeland improvements (e.g., water pipelines, reservoirs, and fences).

Fire Management

Prescribed burns are used for fire management on federal and nonfederal lands in the project area. Factors associated with fire management that can produce impacts may include access roads and air pollution.

Recreation

Dispersed recreation is a primary use in portions of the planning area. Factors associated with recreation that can produce impacts may include:

- Visiting scenic and historic places;
- Cross-country and downhill skiing;
- Hunting and fishing;
- All-terrain vehicle use;
- Camping, hiking, and picnicking; and
- Viewing wildlife.

5.3 CUMULATIVE IMPACTS

Providing consent to geothermal leasing on National Forest System lands, as identified under the Proposed Action, would not contribute to cumulative impacts on resources or resources uses in the planning area. Likewise, issuing leases does not cause direct impacts (see discussion in Section 4.1.1). Issuing geothermal resource leases is, however, a conditional commitment of the resource for future exploration and utilization. Therefore, an analysis of these anticipated future actions (leasing and development) consistent with implementation of the action alternatives is provided to assess the incremental contribution of these alternatives as well as other anticipated future actions

associated with development of geothermal resources, when added to impacts from past, present, and reasonably foreseeable future actions throughout the project area.

While a variety of actions on National Forest System lands are considered in this analysis, information about how many future projects may actually be undertaken is lacking, and information about the likely locations of future development is unknown. As such, the cumulative effects discussed in this section are general in nature. The resource discussions below are intended, as is appropriate in a programmatic approach, to put potential future geothermal development into context with impacts of known ongoing and planned activities, and to highlight issues that would be considered in future, site-specific NEPA actions. Additional, site-specific analysis would be conducted when a geothermal project is proposed.

5.3.1 Land Use

The contribution to cumulative impacts of geothermal projects on National Forest System lands would be small or negligible unless a significant permanent, uncompensated loss of the current productive use of a site occurred, or if other future uses were precluded. Geothermal leasing and development requires a relatively small footprint and the land required is not completely occupied by the plant. As a point of reference, based on the upper range of the RFD for geothermal electrical generation, up to 3,300 acres could be disturbed for development compared to the 609,780 acres of land that are being considered for consent to geothermal leasing within the planning area.

Given the small footprint, geothermal development (direct and indirect uses) is generally compatible with many other land uses, including livestock grazing; some forms of recreation; wildlife habitat conservation; and other ROWs and land uses. The small number of workers at a geothermal power plant would not likely add to cumulative impacts on land use or land disturbance that are occurring or have occurred from ongoing and past activities.

5.3.2 Special Designations

As outlined under the action alternatives, geothermal leasing would not be allowed for many specially designated areas. Stipulations, conditions of approval, and BMPs would minimize any impacts in these areas. Management of special designation areas is governed by site-specific management direction to protect the special resource values. This gives local authorized officers the information and discretion on how to manage leases to minimize local and cumulative impacts. Cumulative impacts would be expected in areas of high mixed mineral development; however, the collocation of these mineral sources is rare.

Stipulations under the action alternatives would limit impacts on the inventoried roadless areas and reduce the potential for cumulative impacts from these actions when combined with and future actions.

5.3.3 Recreation

While geothermal is compatible with some other land uses, it is undeniable that any power generation facility constructed where none previously existed would alter local visual and aural (auditory/sound) conditions (i.e., recreation setting), and thereby affect the recreation experience. However, given the relatively small area needed to develop geothermal operations, impacts on the recreation setting and experience by recreation users would be minimal.

5.3.4 Geologic Resources and Seismic Setting

Cumulative impacts on geologic resources or seismic characteristics from geothermal exploration, drilling and development are expected to be minor. BMPs and mitigation to impacts from future drilling and earthmoving activities would be implemented. Any impacts from development that might occur would be minimal and largely limited to the project site. The construction of new access roads, improvements to existing roads, and installation of wells and facilities would involve cut and fill operations. If large amounts of fill material would be necessary, increased demands on off-site supplies of sand, gravel, and crushed rock could occur. If multiple construction projects were developed within a single area, local supplies of required fill material, particularly gravel or crushed rock, could be reduced to the point of impacting the needs of roadways and other construction projects. Local changes in topography could be caused by construction of roads, well pads, pipelines, and the power plants. Cumulatively, up to 3,300 acres of land could be disturbed by geothermal development in the planning area for the next 30 years. Seismic events related to geothermal reservoir injection could cumulatively contribute to seismic events triggered by multiple operations.

5.3.5 Energy and Mineral Resources

An increase in development of geothermal resources would have a cumulative impact of contributing to the domestic energy supplies of the United States and of possibly reducing the demand for nonrenewable energy, such as oil, gas, and coal. According to the RFD, there is the potential to produce 240 MW with geothermal resources in the planning area. Geothermal development could cumulatively result in competition for water rights and energy developments at the local and regional level.

5.3.6 Paleontological Resources

Disturbances from geothermal drilling and utilization, combined with other surface-disturbing development activities, could uncover or destroy paleontological resources. However, the potential for uncovering or destroying paleontological resources in the planning area is low to moderate, and proposed stipulations and BMPs addressing cultural resources are outlined in Appendix D of the Geothermal PEIS (BLM and Forest Service 2008) would limit the potential impacts on paleontological resources.

5.3.7 Soil Resources

Geothermal energy exploration, development, and utilization would have a minor cumulative impact on soil compaction and erosion when combined with other development projects and land uses such as livestock grazing across the planning area.

In total, up to 3,300 acres of land could be disturbed by geothermal development within the planning area over the next 30 years. Stipulations that limit siting projects in steeply sloped areas and BMPs that address stormwater runoff and fugitive dust would limit erosion-related impacts.

There are currently no NRCS designated farmlands in the planning area and no impacts from the action alternatives are anticipated to Farmlands of statewide importance, Prime farmland if irrigated, Prime farmland if irrigated and drained and Prime farmland if irrigated and reclaimed of excess salts and sodium. Therefore there would be no cumulative impacts on prime farmlands.

5.3.8 Water Resources (Surface and Ground)

Drilling, well testing, construction, and geothermal production would require the consumption of water. Any additional consumption of water would have a cumulative impact when joined with other water use projects, such as agriculture, municipal wells, other energy projects, and water transfers. The actual consumption of water by energy facilities can be somewhat mitigated through water efficiency and reuse measures. There is a potential for energy facilities to concentrate in areas abundant with the particular energy resource. In such areas, there is a greater potential to contribute to cumulative depletion of water resources. Groundwater depletion is not one of the issues addressed in the proposed lease stipulations, except indirectly through the requirement for compliance with applicable laws and regulations. The state engineer is responsible for assigning water rights and managing groundwater resources. Any added use of groundwater in areas where demand for water is nearing the available sustainable supply would contribute to cumulative impacts on groundwater. Use of closed system geothermal facilities (e.g., binary plant) with air cooling, as opposed to water cooling, would minimize any depletion as no water is directly consumed during operation.

5.3.9 Air Quality and Air Quality Related Values

While geothermal energy generates minimal emissions compared to fossil fuels, the exploration, development, and operation of this renewable resource would be responsible for minor amounts of air pollutants. Most of the emissions associated with geothermal development would be during exploration, drilling, and construction activities and include particulate material (dust) and emissions from vehicles and equipment. When combined with other projects near geothermal developments, there would be a minor localized increase in emissions; however, over the long-term and across the planning area, geothermal electrical generation may have a beneficial cumulative impact on air

quality and atmospheric values by offsetting the need for energy production that results in higher levels of emissions, such as coal, oil, and natural gas.

5.3.10 Vegetation

There would be a minor cumulative impact on vegetation from geothermal development. As a result of exploration, drilling, and utilization disturbance (including roads, transmission lines, and pipelines), there is the potential for nonnative and invasive species to colonize and dominate sites. The facilitation of seed dispersal could result from construction equipment transporting invasive species from the construction areas to adjacent lands along access roads and main roads. Soil compaction from machinery, vehicles, and laydown areas can limit the ability of plants to re-establish in these areas if reclamation is not conducted appropriately. In addition, exploratory drilling or uncontrolled releases could result in the addition of mineralized or saline geothermal waters to the soil, streams, ponds, or wetlands. This contamination could adversely impact vegetation growth and distribution, particularly for sensitive riparian and wetland vegetation. However, the stipulations under the action alternatives includes a 500-foot NSO area around wetland and riparian areas so impacts from spills or release of geothermal waters on these areas would be unlikely. There could be the long-term conversion of habitat types, such as from sagebrush to grassland. Many of these impacts would be minor on a site-by-site basis and would be reduced through implementation of the stipulations; however, if geothermal development is consolidated with other developments that have similar effects, the cumulative impact could affect the functioning of local ecosystems.

5.3.11 Fish and Wildlife

The potential cumulative effects on vegetation would impact native fish and wildlife as habitats are fragmented, degraded, or destroyed from development, including all impacts described in Sections 4.11 and 4.12. Industrial activities such as geothermal development can substantially modify or eliminate habitat within and near the development footprint, although not all species are harmed by conversion of land to more intensive uses. While the footprints of geothermal developments are relatively small, if geothermal development is consolidated with other developments that have similar effects there would be a cumulative effect via habitat fragmentation. The creation of new access roads, pipelines and transmission lines would also contribute to fragmentation, would serve as a vector for invasive species, and could provide perches and nesting habitat for predators such as raptors and corvids. The action alternatives outline stipulations to minimize impacts on fish and wildlife and conditions of approval and BMPs applied at the permitting phases of geothermal development would also minimize these impacts; however, fragmentation is often unavoidable.

5.3.12 Threatened, Endangered, and Special Status Species

Loss of habitat is an important factor contributing to the increase in the number of species listed as threatened or endangered in recent years. Stipulations and

permitting requirements specified under the action alternatives, including appropriate compliance with Section 7 of the ESA, would minimize the risk of directly taking listed species, but there could be a cumulative effect from removal of small patches of habitat that can add up to a notable acreage. Sage-grouse is one special status species that could be negatively affected by extensive development due to the potential cumulative loss of habitat. However, specific sage-grouse stipulations and permitting requirements would minimize this impact.

5.3.13 Wild Horses and Burros

Cumulative impacts on wild horses and burros would occur when geothermal development projects occur along with other projects in Horse and Burro Territories and when both types of projects result in loss of vegetation, water supplies and the disruption of wild horses and burro practices. Geothermal developments tend to congregate in areas where there is a viable geothermal resource present. Should such conditions be discovered within Wild Horse and Burro Territories, wild horses and burros could be displaced. This cumulative effect would only be realized where there is a high potential for geothermal development and there are larger populations of wild horses and burros, such as in the Montgomery Pass Territory within the Bridgeport Decision Area.

5.3.14 Livestock Grazing

Cumulative impacts on livestock grazing would occur from the loss of forage for grazing, loss of AUM capacity, and the disruption of livestock grazing practices where geothermal development and other projects overlay grazing allotments. Geothermal developments would remove some forage, and could lower the AUM capacity in areas with livestock operations.

5.3.15 Cultural Resources

Disturbances from geothermal drilling and utilization, combined with other surface-disturbing development activities, could uncover or destroy cultural resources. However, the proposed stipulations and BMPs addressing cultural resources and would limit the potential impacts.

5.3.16 Tribal Interests and Traditional Cultural Resources

Disturbances from geothermal drilling and utilization, combined with other surface-disturbing development activities, could uncover or destroy traditional cultural resources. However, the proposed stipulations and BMPs addressing cultural resources, tribal interests and traditional cultural resources combined with ongoing consultation measures would limit the potential impacts.

5.3.17 National Scenic and Historic Trails

The proposed closure of trails to leasing and the inclusion of additional stipulations for leases near historic or scenic trails would reduce impacts on the setting of the trail system. Geothermal developments that are visible from trail sections would result in cumulative impacts when combined with other projects

being developed across the planning area that are also visible from portions of the trail system.

5.3.18 Visual Resources

Development of geothermal resources could result in cumulative impacts on visual resources across the planning area when combined with other projects. The heights, type, and color of drilling equipment and power plants, together with their placement with respect to local topography (i.e., on valley floor or open basin), are factors that would contribute to determining the extent of visual intrusion on the landscape. Also, the development of transmission lines to connect new electrical production facilities to the regional power grid could contribute to cumulative impacts. Stipulations for the protection of visual resources including areas with VQO of retention and other sensitive viewsheds would minimize impacts on visual resources. In addition, flexibility in locating power plants and other large structures to avoid cumulative impacts on important viewsheds should be considered during the permitting process.

5.3.19 Socioeconomic Values and Environmental Justice

Geothermal development projects could cumulatively contribute to beneficial socioeconomic effects across the planning area when combined with other projects that are also creating jobs and generating tax and royalty revenues for local, state, and Federal government.

Geothermal development projects could cumulatively contribute to adverse environmental justice effects when sited along with other industrial projects in close proximity to low-income or minority populations. However, due to the remote location of the planning area there would be no impacts on low-income, minority or other populations.

5.3.20 Health and Safety

The combination of hazardous materials and other health and safety risks associated with the development and operation of geothermal energy facilities in conjunction with similar health and safety concerns for other reasonably foreseeable projects across the planning area is expected to be negligible. All projects would have to comply with state and federal requirements pertaining to worker safety and the use, storage, transport, and disposal of debris and hazardous materials and wastes, thereby minimizing cumulative impacts. The potential for hazardous waste spills (fuel, drilling muds, etc.) would be minimized through the application of BMPs included in lease terms and would not be at a large enough scale to cumulatively affect human health and safety either at the local level when combined with other local projects, or across the planning area when combined with all other projects with similar individual effects.

5.3.21 Noise

Geothermal projects are typically developed at remote locations that are away from other noise sources, where noise generated by power generation, substations, transmission lines, and maintenance activities generally approach

typical background levels for rural areas at distances of 2,000 feet (600 meters) or less. Therefore, the sphere of noise impact is limited in scope and would not be expected to combine with other projects and result in cumulative impacts.

5.3.22 Climate Change

As discussed in Chapter 4, it is expected that projects developed consistent with the action alternatives would result in new, clean energy being brought online, and the greatest potential for reducing greenhouse gas emissions from other sources of energy. Cumulative impacts from geothermal development would therefore be beneficial.

5.4 WHAT UNAVOIDABLE ADVERSE IMPACTS MIGHT BE CAUSED BY CONSENTING TO GEOTHERMAL LEASING?

Consenting to geothermal leasing and the subsequent issuing of leases would not result in any unavoidable adverse impacts. Subsequent development and operation of geothermal facilities could have such impacts. These impacts would be assessed during the permitting process and on a site-specific basis. If geothermal leases were developed, the following general adverse impacts would be expected:

- Long-term loss of vegetation, habitat, soil, and soil quality. The stipulations in the EIS would reduce some of these effects.
- Short-term and intermittent noise impacts from construction and maintenance activities. Operations would have minimal noise impacts.
- Possible loss of some recreational opportunities from energy infrastructure, although new roads could provide access for additional recreational opportunities.
- Long-term visual impact from power plants and infrastructure.

5.5 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

This section discusses the relationship within the Proposed Action between the anticipated short-term use of the environment and the maintenance and enhancement of long-term productivity. For this EIS, short term refers to the steps needed to develop a geothermal resource (exploration, drilling, testing, and construction). Generally it is during this time that the most extensive environmental impacts would occur. Long term refers primarily to the 20-30 year time frame considered within this EIS. This time frame includes the production and utilization phase of a geothermal project.

The exploration and testing phase of a geothermal project is designed to determine the nature and extent of the geothermal resources. Generally, the active portion of this phase is of short duration (less than two years). Where such exploration proves unsuccessful, these lands would not be used for

subsequent development and production. Instead, these lands would be restored as much as possible to their original condition upon completion of exploration and testing activities.

If geothermal activities progress beyond the exploration and testing phase into long-term productivity, the lands could be affected to a greater extent. This would depend on the degree of development (i.e., surface disturbance) and the geothermal resource potential. The short-term uses of the environment associated with anticipated future actions (i.e. exploration, drilling, land clearing, plant construction, etc.) consistent with implementation of the Proposed Action described in Chapter 2 include effects on the natural environment, cultural resources, recreation, and socioeconomic resources. These short-term effects can be compared to the long-term benefits associated with the proposed action, such as clean, renewable energy production for a growing regional population and economy.

Over the long-term, while geothermal plants are in production, these new plants would be producing a low-cost, clean source of renewable energy for use in the project area and other western states. While in production, each plant would provide employment opportunities for citizens of surrounding communities. The sale of this new energy would be a new source of revenue for the counties within which the projects are located. In addition, geothermal energy development offsets the use of irretrievable resources such as coal and oil, which would result in less pollution, fewer greenhouse gas emissions, less dependence on foreign oil and gas, and a possible reduction in the trade deficit.

5.6 WHAT IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES WOULD BE INVOLVED WITH IMPLEMENTATION OF THE PROPOSED ACTION?

This section describes the irreversible and irretrievable commitments of resources associated with implementing the alternatives. Resources irreversibly or irretrievably committed by a proposed action are those utilized on a long-term or permanent basis. Irreversible resource commitments occur when there is unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment. Irreversible commitments apply primarily to nonrenewable resources, such as cultural resources, and also to those resources that are renewable only over long periods of time, such as soil productivity or forest health.

Irretrievable resource commitments occur when an action causes the use or consumption of a resource that is neither renewable nor recoverable for future use. Irretrievable commitments apply to loss of production, harvest, or use of natural resources. These include the use of nonrenewable resources such as metal, fuel, and other natural or cultural resources considered non-retrievable, in that they would be used for the proposed action when they could have been conserved or used for other purposes.

No irreversible commitments of resources would result from the Forest Service providing consent to geothermal leasing. In addition, stipulations outlined under the action alternatives would be applicable to future phases of leasing and development and the lessee would be required to complete a site-specific NEPA analysis outlining their proposed action and alternatives, and the direct and indirect impacts associated with their proposed action, prior to any occupancy and surface disturbance. Nevertheless, anticipated future development actions that may follow leasing consistent with implementation of any of the alternatives discussed in Chapter 2 could result in a variety of irreversible and irretrievable commitments of resources, as follows:

- **Hydrology and Water Quality.** Because of the large volume and long duration of geothermal fluid production, the production stage of resource development is likely to have the greatest potential for impact on hydrologic resources. These impacts could occur in terms of changes to the hydraulics of the geothermal and groundwater reservoirs and spent geothermal fluid disposal. The result could include reduction in spring discharge rates and lowering of water levels in wells. Re-injection of spent geothermal fluids could also introduce low-quality fluids to groundwater pathways that discharge at springs or wells. This could also affect the quality of available water. Disposal of spent geothermal fluids on the surface could create large pools of low-quality water. Changes in spring flow and development of spent fluid-holding ponds could impact wetlands-supported ecosystems and habitats. As a result, hydrologic impacts associated with geothermal development could have secondary impacts in the plant and animal community supported by natural or created wetlands.
- **Invasive Species.** Introduction of noxious weeds by construction and support vehicles into previously clean areas would be probable during all phases of geothermal development. The drilling and utilization phases would present the greatest opportunity for noxious weed introduction and proliferation. Once introduced, control or eradication of noxious weeds could be difficult.
- **Visual Resources.** Any changes in the characteristic landscape of the affected areas due to geothermal energy development could be visible for many years. Succession (change in habitat type over time, including the return of an area to its pre-development state after site reclamation/rehabilitation) in the Great Basin is very slow due to the lack of rainfall. Rehabilitation techniques could use non-indigenous plant species, thus changing the character of the area. The degree of contrast between a reclaimed project site and its untouched surroundings would vary by area, rehabilitation techniques, and the success of those techniques. All landscapes are unique in their own right, and any change or loss of scenic values is

irretrievable. Those losses become more significant in areas of unique or outstanding scenic quality.

- **Threatened, Endangered, and Special Status Species.** Loss of any species is irretrievable. Protection of threatened, endangered, and special status species is governed by federal and state statute. To minimize the effects on threatened, endangered, and special status species, the lessee would be required to complete a site-specific NEPA analysis outlining their proposed action and alternatives, and the direct and indirect impacts of their proposed action, on any threatened, endangered, and special status species prior to any occupancy and surface disturbance. Site-specific compliance with the ESA would occur at the time of development as well.
- **Geology and Minerals.** The principle commitment of resources in implementing the proposed action would be the depletion of thermal energy and water from the geothermal reservoirs tapped for energy use. To minimize this effect, the super-hot water extracted from the subterranean geothermal reservoirs through production wells is injected back into the reservoir for reheating and reuse. Over time, these resources (heat and water) could be depleted to the point that the power generating plant would no longer be economically productive.
- **Cultural Resources.** Destruction and/or loss of cultural resources are irretrievable. Federal and state statutes govern the protection of cultural resources. To minimize the effects on cultural resources, the lessee would be required to complete a site-specific NEPA analysis outlining their proposed action and alternatives, and the direct and indirect impacts of their proposed action on the cultural resources within the lease area, prior to any occupancy and surface disturbance.
- **Hazardous Materials/Waste and Solid Waste.** If handled improperly, hazardous materials/waste and solid waste have the potential to create irretrievable consequences. The transportation, storage, use, and disposal of hazardous materials/waste and solid waste are governed by Federal and state statute. To minimize the effects of hazardous materials/waste and solid waste, the lessee would be required to complete a site-specific NEPA analysis outlining their proposed action and alternatives, and the direct and indirect impacts of hazardous materials/waste and solid waste associated with their proposed action, prior to any occupancy and surface disturbance.

CHAPTER 6

CONSULTATION AND COORDINATION

6.1 PUBLIC SCOPING

As defined under NEPA, the scoping period began with the publication of the Notice of Intent (NOI) in the *Federal Register* on April 15, 2011 (72 Federal Register 113). The NOI published was entitled “*Humboldt-Toiyabe National Forest; Nevada; Environmental Impact Statement for Geothermal Leasing on the Humboldt-Toiyabe National Forest.*” The NOI initiated the public scoping process and invited public comments on the content and issues that should be addressed in the EIS. The Forest Service conducted scoping from April 15, 2011, through May 31, 2011, noting that comments would continue to be considered beyond this date.

Public scoping meetings were held on May 11, 2011, in Yerington, Nevada; May 12, 2011, in Sparks, Nevada; and May 16, 2011, in Austin, Nevada. These meetings provided an opportunity for members of the public, local government, Native American tribes, and other interest groups to learn about the Geothermal Leasing on the Humboldt-Toiyabe National Forest EIS, to provide input into the development of EIS, and to voice concerns related to potential environmental impacts so that these issues may be addressed in the EIS.

During the scoping process, the public was given four means of submitting comments to the Forest Service:

1. Traditional mail;
2. Facsimile transmission;
3. Electronic mail; and
4. Submission/delivery at scoping meetings.

This variety of ways to communicate issues and submit comments was provided to encourage maximum participation. All comments, regardless of submission method, received equal consideration.

Efforts were undertaken to inform and involve target audiences during the scoping period that began on April 15, 2011. Scoping activities conducted included the following:

- NOI published in Federal Register;
- Media outreach, including press release and project Web site (<http://www.fs.usda.gov/goto/htnf/geothermal>);
- Scoping meetings conducted; and
- Post card mailing to project mailing list, including federal, state, and local agencies, Native American tribes, special interest groups, and landowners.

Approximately 10 people attended the scoping meetings and 25 written submissions were received. The most common format used for submissions was e-mail. Submissions were also received via US Mail or completed at a public scoping meeting. Of the 25 submissions received, three were received from the general public, nine from non-profit organizations, two from Native American tribes, three from businesses, one from a federal government agency, three from state government agencies, and four from local government agencies. The following agencies, organizations, and industries provided comments, as well as private individuals.

- National Trails System, US Department of the Interior, National Park Service
- Nevada Department of Wildlife
- Nevada Department of Transportation
- Nevada Division of Water Resources
- State Historic Preservation Office
- Nevada Department of Wildlife
- The Greater Austin Chamber of Commerce
- Austin Historical Society
- Lund Irrigation and Water Company
- Preston Irrigation Company
- White River Ranch
- Ormat
- Lander County Board of Commissioners
- Defenders of Wildlife
- Nevada Wilderness Project

- Trout Unlimited, Great Basin Chapter
- American Wild Horse Preservation Campaign
- Western Watersheds Project
- Fallon Paiute Shoshone Tribe
- Bridgeport Indian Colony
- Center for Biological Diversity
- Duckwater Shoshone Tribe

The Forest Service published a scoping report on the project Web site that summarized and categorized the major themes, issues, concerns, and comments expressed by private citizens, government agencies, private firms, and nongovernmental organizations. The Forest Service considered the comments in developing the alternatives and analytical issues that are contained in this EIS. Summaries of the individual letters, facsimiles, and electronic comments received during scoping are available within the scoping report (Forest Service 2011c).

6.2 PUBLIC COMMENT ON THE DRAFT EIS

Notice of the publication of the Draft Environmental Impact Statement for Geothermal Leasing on the Humboldt-Toiyabe National Forest was published in the Federal Register by the Forest Service on December 30, 2011. Publication of the Notice of Availability initiated a 45-day public comment period.

The Draft EIS is available for download in its entirety on the Forest Service project Web site. Copies of the document were mailed in response to document requests. During the 45-day public comment period the Forest Service hosted an open house in the Reno/Sparks area to provide the public with opportunities to become involved, to learn about the project and planning process, to meet the Forest Service staff, and to offer comments. The public was notified of the open house by news release, Web site (<http://www.fs.usda.gov/goto/htnf/geothermal>), and post card mailing. The open house was held from 4:00 to 7:00 p.m. on January 20, 2012, at 1200 Franklin Way in Sparks, Nevada.

In total, Forest Service received 29 comment letters authored by 30 individuals with various affiliations. The comments were reviewed and considered in the preparation of the Final EIS. A summary of the comments and the responses to comments are included in this EIS as Appendix B, Appendix Title. Of the comments received, six were from the general public (including business and landowners), eight from non-profit organizations, three from Native American tribes, five from federal government agencies, four from state government agencies, and three from local government agencies. Table 6-1, Agencies, Organizations, Industries, and Individuals Who Submitted Comments, lists the agencies, organizations, industries, and private individuals provided comments.

Table 6-1
Agencies, Organizations, Industries, and Individuals Who Submitted Comments

Name	Affiliation
Debbie Gieb	Individual
Chris R.	Individual
Peter Smith	Individual
Phillip Williams	Greater Austin Chamber of Commerce and Lander County Public Land Use Advisory Planned Commission
Skip Canfield	State Land Use Planning Agency
Zane Marshall	Southern Nevada Water Authority
Maurice Frank-Churchill	Duckwater Shoshone Tribe
John Glazier	Bridgeport Indian Colony
Ron Johnny	Bridgeport Indian Colony
Kathleen Goforth	United States Environmental Protection Agency
Sheila Mallory	Nevada State Office BLM
Jose Noriega	Forest Service
Edward Koch	DOI Fish and Wildlife Service
Patricia Port	DOI Office of Environmental Policy and Compliance–Pacific Southwest Region
Joseph DiTucci	Nevada Division of Water Resources
Lou Groffman	Nevada Department of Transportation
Mark Freeze	Nevada Division of Wildlife
Katie Fite	Western Watersheds
Rob Mrowka	Center for Biological Diversity
Rose Strickland	Sierra Club
Marjorie Sill	Sierra Club and Individual letter
Jeneane Harter	Nevada Wilderness Project
Ali Harvey	Nevada Wilderness Project
Gregg Tanner	Nevada Wilderness Project
Jessica Brown	Nevada Wilderness Project
Charles Brown	Preston Irrigation Co and private owner of White River Ranches
Garth Sinfield	Private owner: Tin Can Spring
Walter Cripps	Private owner: McQuitty Spring
Roderick McKenzie	Lund Irrigation and Water Co.
Steven Carter	Preston Irrigation Co

6.3 GOVERNMENT-TO-GOVERNMENT CONSULTATION

The Forest Service consults on a government-to-government basis with Native American tribes. As a part of the government's treaty and trust responsibilities, the government to government relationship was formally recognized by the federal government on November 6, 2000, with EO 13175, "Consultation and Coordination with Indian Tribal Governments".

The Humboldt-Toiyabe National Forest District Rangers have consulted with federally recognized tribes in the planning area, including the Ely Shoshone Tribe, Duckwater Shoshone Tribal Council, Yomba Shoshone Tribe, Te-Moak

Tribe of Western Shoshone, Battle Mountain Band Council, Fallon Paiute Shoshone Tribe, Winnemucca Indian Colony, Elko Band Council, Yerington Paiute Tribe, Bridgeport Indian Colony, Bishop Paiute, Walker River Paiute, Washoe Tribe of Nevada and California, Mono Lake Tribe, Goshute Tribe, and Benton Paiute Tribe.

The Forest Service sent letters to the above tribes describing the project and requesting consultation with an invitation to participate in any requested council meetings and/or field trips to the decision areas. Four tribes responded with requests for the Forest Service to present the project information at council meetings and on field trips. The Forest Service presented at the Goshute Tribal Council meeting, the Ely Shoshone Tribal Council meeting, and the Duckwater Tribal Council meeting. The Forest Service also conducted field trips to the decision areas with the Ely Shoshone and Duckwater Shoshone tribal representatives. In addition, eight tribes were provided the Class I Cultural Report. Two tribes expressed concerns related to traditional property uses and the desire to not change anything. Tribes also wished to be kept informed of developments. The Forest Service has committed to ongoing Tribal consultation with affected tribes, and will continue to do so throughout the project.

6.4 AGENCY COOPERATION, CONSULTATION, AND COORDINATION

This EIS was prepared by the Forest Service to provide consent to BLM for leasing of areas within the planning area. The Nevada State Office of the BLM was notified of the project and the Forest Service has had ongoing contact with the BLM representative.

Coordination with BLM State Office and Field Office staff will continue on issues related to geothermal leasing on BLM- and Forest Service-administered lands through the completion of the project.

The Forest Service is coordinating with and soliciting input from the State Historic Preservation Offices and the Advisory Council on Historic Preservation in accordance with the National Historic Preservation Act. This EIS provides for a phased consultation process related to historic, traditional, and cultural resources.

6.5 ENDANGERED SPECIES ACT, SECTION 7

6.5.1 Section 7 Requirements

Requirements for Section 7 consultation would be conducted in concordance with the Endangered Species Act (ESA) as discussed in detail in the EIS and incorporated by reference here.

6.5.2 Agency Status under ESA Section 7

The Forest Service has concluded that they are an action agency for ESA purposes because they manage Federal land where leasing and development of

geothermal resources may take place. The Forest Service will be making decisions appropriate to their respective management authority regarding pending lease applications, and is therefore, an action agency for ESA purposes.

CHAPTER 7

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CHAPTER 8

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CHAPTER 9

GLOSSARY

Allotment: An area of land where one or more operators graze their livestock. It generally consists of public lands but may include parcels of private or state-owned lands. The number of livestock and period of use are stipulated for each allotment.

Amendment: The process for considering or making changes in the terms, conditions, and decisions of approved RMPs using the prescribed provisions for resource management planning appropriate to the proposed action or circumstances. Usually only one or two issues are considered that involve only a portion of the planning area.

Animal Unit Month (AUM): The amount of forage necessary for the sustenance of one cow or its equivalent for a period of one month (approximately 800 pounds of air-dried material per AUM). A full AUM's fee is charged for each month of grazing by adult animals if the grazing animal: 1) is weaned, 2) is six months or older when entering public land, or 3) will become 12 months old during the period of use. For fee purposes, an AUM is the amount of forage used by five weaned or adult sheep or goats or one cow, bull, steer, heifer, horse, or mule. The term AUM is commonly used in three ways: 1) stocking rate, as in X acres per AUM, 2) forage allocation, as in X AUMs in allotment A, and 3) utilization, as in X AUMs consumed from Unit B.

Assessment: The act of evaluating and interpreting data and information for a defined purpose.

Best Management Practices (BMP): A suite of techniques that guide, or may be applied to, management actions to aid in achieving desired outcomes. Best management practices are often developed in conjunction with land use plans, but they are not considered a land use plan decision unless the land use plan specifies that they are mandatory. They may be updated or modified without a plan amendment if they are not mandatory.

Closed: Generally denotes that an area is not available for a particular use or uses; refer to specific definitions found in law, regulations, or policy guidance for application to individual programs. For example, 43 CFR 8340.0-5 sets forth the specific meaning of “closed” as it relates to OHV use, and 43 CFR 8364 defines “closed” as it relates to closure and restriction orders.

Conformance: Means that a proposed action shall be specifically provided for in the land use plan or, if not specifically mentioned, shall be clearly consistent with the goals, objectives, or standards of the approved land use plan.

Consistency: Proposed land use plan does not conflict with officially approved plans, programs, and policies of tribes, other Federal agencies, and State and local governments to the extent practical within Federal law, regulation, and policy.

Controlled Surface Use (CSU) The CSU stipulation is intended for application where standard lease terms and permit-level decisions are deemed insufficient to achieve the level of resource protection necessary to protect the public interest, but where an NSO is deemed overly restrictive. A CSU stipulation allows BLM to require that a proposed facility or activity be relocated by more than 200 meters from the proposed location if necessary to achieve the desired level of protection. A CSU is not required if relocating a proposed facility or activity by up to 200 meters would be sufficient for protection of the specified resources.

Condition of Approval (COA): A site-specific and enforceable requirement included in an approved Application for Permit to Drill (APD) or Sundry Notice that may limit or amend the specific actions proposed by the operator. Conditions of Approval minimize, mitigate, or prevent impacts to resource values or other uses of public lands.

Designated right-of-way corridor: A parcel of land, usually linear in shape, that is identified through Secretarial Order in a land use plan or by other management decision as a preferred location for existing and future rights-of-way grants.

Endangered species: As defined in the Federal Endangered Species Act, any species which is in danger of extinction throughout all or a significant portion of its range. For terrestrial species, the USFWS determines endangered status.

Environmental Assessment (EA): A public document for which a federal agency is responsible that serves to; (a) briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement or a finding of no significant impact; (b) aid an agency's compliance with the National Environmental Policy Act (NEPA) when no Environmental Impact Statement is necessary; (c) Facilitate the preparation of a statement when one is necessary. An EA includes brief discussions of the need for the proposal and of the environmental impacts of the proposed action and other alternatives.

Environmental Impact Statement (EIS): A written analysis of the impacts on the natural, social, and economic environment of a proposed project or resource management plan.

Exception: is a one-time exemption for a particular site within the leasehold; exceptions are determined on a case-by-case basis; the stipulation continues to apply to all other sites within the leasehold. An exception is a limited type of waiver.

Federal land: Land owned by the United States without reference to how the land was acquired or which Federal Agency administers the land, including mineral and coal estates underlying private surface.

Federal Land Policy and Management Act of 1976 (FLPMA): Public Law 94-579, which gives the BLM legal authority to establish public land policy, to establish guidelines for administering such policy and to provide for management, protection, development and enhancement of the public land.

Fossiliferous: Fossil containing rocks.

Geographic Information System (GIS): A computer system capable of storing, analyzing, and displaying data and describing places on the earth's surface.

Geophysical exploration: Efforts to locate deposits of oil and gas resources and to better define the sub-surface.

Geothermal energy: Natural heat from within the Earth, captured for production of electric power, space heating or industrial steam.

Geothermal heat pumps: Devices that take advantage of the relatively constant temperature of the Earth's interior, using it as a source and sink of heat for both heating and cooling. When cooling, heat is extracted from the space and dissipated into the Earth; when heating, heat is extracted from the Earth and pumped into the space.

Geothermal plant: A plant in which the prime mover is a steam turbine. The turbine is driven either by steam produced from hot water or by natural steam that derives its energy from heat found in rocks or fluids at various depths beneath the surface of the Earth. The energy is extracted by drilling and/or pumping.

Historic resources: material remains and the landscape alterations that have occurred since the arrival of Euro-Americans.

Implementation plan: A site-specific plan written to implement decisions made in a land use plan. An implementation plans usually selects and applies best management practices to meet land use plan objectives. Implementation plans are synonymous with "activity" plans. Examples of implementation plans include interdisciplinary management plans, habitat management plans, and allotment management plans.

Invertebrate: Animals without vertebrae (back bones) or notochord.

Lease stipulation: A condition of lease issuance that provides a level of protection for other resource values or land uses by restricting lease operations during certain times or locations or to avoid unacceptable impacts, to an extent greater than standard lease terms or regulations. A stipulation is an enforceable term of the lease contract, supersedes any inconsistent provisions of the standard lease form, and is attached to and made a part of the lease. Lease stipulations further implement the Bureau of Land Management's (BLM) regulatory authority to protect resources or resource values. Lease stipulations are developed through the land use planning process.

Land use allocation: The identification in a land use plan or land use plan amendment of the activities and foreseeable development that are allowed, restricted, or excluded for all or part of the planning area, based on desired future conditions.

Land use plan: A set of decisions that establish management direction for land within an administrative area for the BLM and FS. BLM plans are commonly called Resource Management Plans (RMPs), although older plans are called Management Framework Plan (MFP) or Management Plan. The FS has Forest Plans at the forest level.

Land use plan decision: Establishes desired outcomes and actions needed to achieve them. Decisions are reached using the planning process in 43 CFR 1600. When they are presented to the public as proposed decisions, they can be protested to the BLM Director. They are not appealable to IBLA.

Leasable minerals: Minerals such as coal, oil shale, oil and gas, phosphate, potash, sodium, geothermal resources, and all other minerals that may be acquired under the Mineral Leasing Act of 1920, as amended.

Locatable minerals: A mineral subject to location under the 1872 mining laws. Examples of such minerals would be gold, silver, copper, and lead as compared to oil and natural gas, which are leasable minerals.

Management decision: A decision made by the BLM to manage public lands. Management decisions include both land use plan decisions and implementation decisions.

Modification: A change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

National Environmental Policy Act (NEPA) of 1969: A law enacted on January 1, 1970 that established a national policy to maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans. It established the Council on Environmental Quality for coordinating environmental matters at the federal level and to serve as the advisor to the President on such matters. The law made all federal actions and proposals that could have significant impact on the environment subject to review by federal, state, and local environmental authorities.

Native (indigenous) species: A species of plant or animal that naturally occurs in an area and that was not introduced by humans.

National Forest System (NFS) lands: Forests and grasslands that the Forest Service (FS) manages. Includes both lands reserved from the federal estate and acquired lands.

No Surface Occupancy (NSO): A fluid minerals leasing constraint that prohibits occupancy or disturbance on all or part of the lease surface to protect special values or uses. Lessees may exploit the fluid mineral resources under the leases restricted by this constraint through use of directional drilling from sites outside the NSO area.

Open: Generally denotes that an area is available for a particular use or uses. Refer to specific program definitions found in law, regulations, or policy guidance for application to individual programs. For example, 43 CFR 8340.0-5 defines the specific meaning of “open” as it relates to OHV use.

Permitted use: The forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease; expressed in Animal Unit Months (AUMs) (43 CFR 4100.0-5).

Permittee: A person or company permitted to graze livestock on public land.

Physiography: terrain texture, rock types, and geologic structure and history

Planning area: Potential geothermal leasing areas on National Forest Service Lands which were identified for the analysis to determine consent to leasing.

Prehistoric resources: refer to any material remains, structures, and items used or modified by people before Euro-Americans established a presence in the region.

Renewable energy: Resources that constantly renew themselves or that are regarded as practically inexhaustible. These include solar, wind, geothermal, hydro and wood. Although particular geothermal formations can be depleted, the natural heat in the Earth is a virtually inexhaustible reserve of potential energy. Renewable resources also include some experimental or less-developed sources such as tidal power, sea currents and ocean thermal gradients.

Right-of-Way (ROW): An easement or permit, which authorizes public land to be used for a specified purpose that generally requires a long narrow strip of land. Examples are roads, power-lines, pipelines, etc.

Seismic exploration: Seismic exploration remains the most common way to locate sub-surface resources. The process involves sending sound waves into the earth at one point and recording them at others after having passed through differing geological strata. There are two common methods utilized today. One method involves the detonation of small explosive charges. The other method consists of a truck that drops a huge weight at various intervals. The data collected is used to show probable sub-surface resource deposits.

Site visit: The entry of one person upon a national forest site or area to participate in recreation activities for an unspecified period of time.

Special status species: Includes proposed species, listed species, and candidate species under the ESA; State-listed species; and BLM State Director-designated sensitive species (see BLM Manual 6840 - Special Status Species Policy).

Standard lease terms and conditions: Areas may be open to leasing with no specific management decisions defined in a Resource Management Plan; however, these areas are subject to lease terms and conditions as defined on the lease form (Form 3100-11, Offer to Lease and Lease for Oil and Gas; and Form 3200-24, Offer to Lease and Lease for Geothermal Resources).

State Implementation Plan (SIP): A strategic document, prepared by a State (or other authorized air quality regulatory agency) and approved by the U.S. Environmental Protection Agency, which thoroughly describes how requirements of the Clean Air Act will be implemented (including standards to be achieved, control measures to be applied, enforcement actions in case of violation, etc.).

Stipulation: A condition of lease issuance that provides protection for other resource values or land uses by establishing authority for substantial delay or site changes or the denial of operations within the terms of the lease contract.

Stipulation Standards: the physical and temporal conditions, resources or resource values that must be present and met for application of a specific stipulation to a specific lease

Temporal: Refers to geologic time for the purposes of this report.

Tectonic: Tectonics is a field of study within geology concerned generally with the structure of the crust of the Earth and particularly with the forces and movements that have operated in a region to create geomorphic features.

Terranes: A crustal block or fragment that preserves a distinctive geologic history that is different from the surrounding areas and that is usually bounded by faults

Timing Limitation (TL): This stipulation limits activity during a specified period of the year. A TL stipulation is intended for application where standard lease terms are deemed insufficient to achieve the level of resource protection necessary to protect the public interest, but where an NSO is deemed overly restrictive. The scope of the TL stipulation goes beyond ground-disturbing activities to encompass any source of protracted or high-intensity disturbance that could interfere with normal wildlife behavior and adversely affect habitat use. The limitation is applied annually for a specified period lasting more than 60 days. Under the Proposed Plan, TLs may also be applied to land uses and activities other than oil and gas development.

Transmission: The movement or transfer of electric energy over an interconnected group of lines and associated equipment between points of supply and points at which it is transformed for delivery to consumers, or is delivered to other electric systems. Transmission is considered to end when the energy is transformed for distribution to the consumer.

Threatened species: 1) Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, and 2) as further defined by the Endangered Species Act of 1973.

Tribal interests: Native American or Native Alaskan economic rights, such as Indian trust assets, resource uses and access guaranteed by treaty rights, and subsistence uses.

Traditional cultural resources or properties: Areas of cultural importance to contemporary communities, such as sacred sites or resource gathering areas.

Utility: A regulated entity which exhibits the characteristics of a natural monopoly. For the purposes of electric industry restructuring, "utility" refers to the regulated, vertically-integrated electric company. "Transmission utility" refers to the regulated owner/operator of the transmission system only. "Distribution utility" refers to the regulated owner/operator of the distribution system which serves retail customers.

Vertebrate: Animals with vertebrae (back bones), including fish, amphibians, reptiles, birds and mammals.

Waiver: A permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

Watt: The electrical unit of power. The rate of energy transfer equivalent to 1 ampere flowing under a pressure of 1 volt at unity power factor.

Watt-hour (Wh): An electrical energy unit of measure equal to 1 watt of power supplied to, or taken from, an electric circuit steadily for 1 hour.

Wilderness area: An area of public land designated by an Act of Congress to be protected in its natural condition according to the requirements of the Wilderness Act of 1964.

Wilderness Study Area (WSA): Created by the BLM through the inventory process of the Federal Land Policy and Management Act (FLPMA), which required the BLM to inventory lands under its management authority for wilderness quality and protect those lands until Congress decides whether or not to designate the land as Wilderness.

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Appendix A

Geothermal Lease Stipulations

APPENDIX A

GEOTHERMAL LEASE STIPULATIONS

LEASING AND DEVELOPMENT PROCESS OF GEOTHERMAL RESOURCES ON FOREST SERVICE LANDS

Federal Geothermal Leasing Laws and Regulations

A federal geothermal lease grants “the exclusive right to drill for, extract, produce, remove, utilize, sell, and dispose of all the geothermal resources” in the lands described within the lease form. According to 43 CFR 3200.1 definitions, geothermal steam and associated geothermal resources are defined as (1) all products of geothermal processes, including indigenous steam, hot water, and brines; (2) steam and other gases, hot water, and hot brines resulting from water, gas, or other fluids artificially introduced into geothermal formations; (3) heat or other associated energy found in geothermal formations; and (4) any byproducts. The State of Nevada defines geothermal rights as a water right; therefore, geothermal developers must obtain the appropriate water rights and state permits, in addition to the federal lease for the resource.

The BLM has the delegated authority to issue geothermal leases on federal lands. It is the policy of the federal government, consistent with Section 2 of the Mining and Minerals Policy Act of 1970 and Sections 102(a)(7), (8), and (12) of the FLPMA (43 USC 1701 et seq.), to encourage the development of mineral resources, including geothermal resources, on federal lands. The Geothermal Steam Act of 1970 (30 USC Section 1001, et seq.), which was amended and supplemented by the Energy Policy Act of 2005, provides statutory guidance for geothermal leasing by the BLM. New federal geothermal development regulations (43 CFR Parts 3000, 3200, and 3280 – Geothermal Resource Leasing and Geothermal Resources Unit Agreements) were made effective June 1, 2007 (72 Federal Register 24358, May 2, 2007), as a result of a directive provided in the Energy Policy Act of 2005. These statutes and regulations delineate lands that are available and unavailable for leasing.

Leasing Process, Rights, and Limitations

The BLM grants access to geothermal resources through a formalized leasing process based on the end use. For direct uses, an applicant can apply noncompetitively for a lease. For indirect use, such as commercial electrical generation, the BLM awards leases through a competitive bidding process. Historically, certain lands were designated as known geothermal resource areas. All lands designated within known geothermal resource areas were leased through a competitive bidding process. Until the passage of the Energy Policy Act of 2005, lands outside of known geothermal resource areas could be leased noncompetitively. Section 222 of the Energy Policy Act of 2005 modified the Geothermal Steam Act of 1970 to allow only competitive lease sales for all federal geothermal resources and their associated land with the following exceptions: (1) Parcels of land that did not receive bids in a competitive sale for a period of two years following the competitive sale; (2) Lands available exclusively for direct use; (3) Lands subject to mining claim and a current approved plan of operation; and (4) Lands for which a lease application was pending on August 8, 2005, if the applicant so chooses. Lease areas are nominated by the public for a lease sale.

When the BLM receives a nomination, it is adjudicated, and configured into lease parcels by the corresponding BLM state office. Lease parcels are then forwarded to the appropriate Forest Service office where the appropriate environmental analysis and review is conducted.

The four stages of geothermal resource development within a lease are exploration, drilling operations, utilization, and reclamation and abandonment. Each stage requires a permit from the BLM, and is described in detail in Chapter 2 of the PEIS (BLM and Forest Service 2008). Leasing geothermal resources by the BLM vests with the lessee a non-exclusive right to future exploration and an exclusive right to produce and use the geothermal resources within the lease area, subject to existing laws, regulations, formal orders, and the terms, conditions and stipulations in or attached to the lease form or included as conditions of approval to permits. ***Lease issuance alone does not authorize any ground-disturbing activities to explore for or develop geothermal resources without site-specific approval for the intended operation.*** Such approval could include additional environmental reviews and permits. Also at each stage, the BLM can issue site-specific conditions of approval to protect resource values.

A lease is issued for a primary term of 10 years and may be extended for two five-year periods. Each of these extensions is available provided the lessee meets the work commitment requirements, or lessee made payment in lieu of minimum work requirements of each year. At any time a lease may receive a five-year drilling extension. Once commercial production is established, the lease may receive a production extension of up to 35 years and a renewal period of up to 55 years. The lease must continue to produce to remain in

effect. BLM may grant a suspension of operations and production on a lease when justified by the operator (see 43 CFR 3207).

Geothermal exploration and production on federal land conducted through leases are subject to terms and stipulations, and must also comply with all applicable federal and state laws pertaining to various considerations for tribal interests, sanitation, air quality, solid waste, scenic values, roads, water quality, wildlife, safety, cultural resources, and reclamation.

Exceptions, Modifications, and Waivers

Stipulations could be excepted, modified, or waived by the Authorized Officer. On National Forest Service lands, the Forest Service is the authorized officer when granting a request for an exception, modification, or waiver, and the Forest Service appeals procedures would apply. An exception exempts the holder of the land use authorization document from the stipulation on a one-time basis. A modification changes the language or provisions of a surface stipulation, either temporarily or permanently. A waiver permanently exempts the surface stipulation.

Exception, Modification, or Waiver Process

An Exception, Modification, or Waiver may be granted at the discretion of the Forest Service Ranger if any of the standard exception, modification, or waiver criteria are met, or if any of the exception, modification, or waiver criteria specific to the stipulation are met. In order to implement an action that would not normally be allowed because of a stipulation, the proponent must submit a request in writing for an exception, modification, or waiver. The request shall detail which exception, modification, or waiver criteria are met. When requested concurrently with an application (typical for situations involving lease stipulations), the exception, modification, or waiver is considered as part of the project proposal in LRMP and NEPA compliance review. For separate requests, the request is considered as a unique action and is analyzed and documented individually for LRMP and NEPA compliance. The Forest Service authorized officer would make the final determination whether to grant an exception, modification, or waiver to stipulations, which would then be applied by the BLM field office processing the application.

Standard Exception

The standard exception applies to all NSO/No Surface-disturbing Activities, CSUs, and TLs. An exception may be granted by the Authorized Officer if it can be demonstrated that the surface-disturbing activity:

1. would not cause adverse impacts or would have negligible impacts on the resource or resource use that the stipulation was designated to protect; or
2. would improve the protected resource or resource use as defined by the Forest Plan objectives, standards, or conditions in the stipulation (e.g., fuels

treatment that improves forbs in key wildlife habitat, or trail construction for resource protection in an ACEC or elsewhere); or

3. is necessary to meet health and safety objectives such as fire suppression or fire emergency stabilization *and* rehabilitation.

In situations where a surface-disturbing activity is excepted, the activity could be subject to additional conditions of approval, reclamation measures, or BMPs. Measures required would be based on the nature and extent of resource values potentially affected by the surface-disturbing activity. Excepted surface-disturbing activities/lease stipulations are granted on a one-time case-by-case basis and will not necessarily constitute subsequent approvals.

Standard Modification

A 30-day public notice and comment period is required before modification of a stipulation.

Standard Waiver

No permanent exemptions or waivers are authorized unless the areas mapped as possessing the attributes are field verified by Forest Service staff to lack those attributes.

Leasing Stipulations for Lands within the Humboldt-Toiyabe Geothermal Leasing EIS Decision Areas

The following lease stipulations have been developed as mitigating measures for geothermal leasing and other reasonably foreseeable development activities with regard to geothermal exploration and development within the Humboldt-Toiyabe National Forest.

For leases within National Forest System lands, the lessee/operator must comply with all the rules and regulations of the Secretary of Agriculture set forth in Title 36, Chapter II of the CFR governing the use and management of the National Forest System when not inconsistent with the rights granted by the Secretary of Interior in the lease/permit. The Secretary of Agriculture's rules and regulations must be complied with for:

1. all use and occupancy of the National Forest System lands prior to approval of an exploration plan by the Secretary of Interior;
2. uses of all existing improvements, such as forest development roads, within and outside the area permitted by the Secretary of Interior; and
3. use and occupancy of the National Forest System lands not authorized by an exploration plan approved by the Secretary of Interior.

The lands subject to this stipulation are described as all potential lease sections.

A. No Surface Occupancy:

No Surface Occupancy (NSO) stipulations are considered a major constraint as they do not allow for surface development. For example, a lessee of a NSO area must develop any surface infrastructure outside the NSO area and would need to use advanced technology, such as directional drilling, to access the geothermal resource under the NSO area. These NSO stipulations are applied to the standard lease form as condition of the lease. An NSO is appropriate when the standard terms and conditions, other less restrictive lease stipulations (see below), and best management practices for permit approval are determined to be insufficient to achieve the resource protection objectives.

The following NSO stipulations would be applied by the authorizing officer.

1. On lands administered by the Forest Service, no surface occupancy or other surface disturbance will be allowed on slopes in excess of 40 percent.
2. The lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, EO 13007, or other statutes and executive orders. No ground-disturbing operations would be allowed within 200 feet of eligible National Register sites, historic properties, National Historic Trails, or unevaluated archeological historic sites.
3. Within water bodies, riparian areas, wetlands, playas, and 100-year floodplains, and specifically a 300-foot buffer around Lahontan Cutthroat Trout historic habitat.
4. No surface occupancy would be allowed within a minimum buffer of 200 feet of Traditional Cultural Properties (TCPs) and Native American sacred sites, as identified through consultation.
5. In developed recreational facilities, special-use permit recreation sites (e.g., ski resorts and camps), and areas with significant recreational use with which geothermal development is deemed incompatible; excluding direct use applications.
6. Adjacent to segments of rivers determined to be potentially eligible for Wild and Scenic Rivers (WSR) status by virtue of a WSR inventory, including a corridor of 0.25 miles from the high water mark on either side of the bank.

B. Controlled Surface Use:

Where standard lease terms and permit-level decisions are deemed insufficient to protect sensitive resources but where an NSO is deemed overly restrictive, the BLM and Forest Service would apply controlled surface use (CSU) stipulations to leases. A CSU allows the BLM and Forest Service to require that any future activity or development be modified or relocated from the proposed location if necessary to achieve resource protection. The lessee will be required

to submit a plan to meet the resource management objectives through special design, construction, operation, mitigation, or reclamation measures, and/or relocation. Until the plan is approved, surface occupancy would not be allowed on the lease. The following CSU stipulations would be applied by the authorizing officer as appropriate for the specific area and site conditions.

1. Protection of riparian and wetland habitat would be applied within 500 feet of riparian or wetland vegetation to protect the values and functions of these areas. Measures required will be based on the nature, extent, and value of the area potentially affected.
2. Protection for visual resources would be applied to National Forest System lands with a Visual Quality Objective of Retention and other sensitive viewsheds, such as within the visual setting of National Scenic and Historic Trails or near residential areas.
3. Protection of recreational areas would be applied to minimize the potential for adverse impacts on recreational values, both motorized and non-motorized, and the natural settings associated with the recreational activity.
4. Ensure compatibility with urban interface would be applied to minimize the potential for adverse impacts on residential areas, schools, or other adjacent urban land uses.
5. The lands within a lease may now or hereafter include plants, animals or their habitat listed as threatened, endangered, proposed, or have candidate status with the USFWS. The Forest Service may require modifications to or disapprove proposed activity that is likely to jeopardize the continued existence of a proposed, threatened, endangered or candidate species or result in the destruction or adverse modification of a designated or proposed critical habitat. The Forest Service will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act (ESA) as amended, 16 USC 1531 et seq., including completion of any required procedure for conference or consultation.
6. The lands within a lease may now or hereafter include plants, animals or their habitat designated as Forest Service Sensitive or have designation through other agencies such as the Nevada Department of Wildlife. The Forest Service may require modifications to exploration and development proposals or disapprove activities in order to avoid the need to list these species under the ESA.
7. The Forest Service manages approximately 409,200 acres of land in the planning area that is designated as Inventoried Roadless Areas (IRA). No new road construction or road reconstruction may occur within the portion of leases that occur in Inventoried Roadless Areas, unless specifically authorized by the Secretary of Agriculture. In addition, timber may not be cut, sold, or removed from an Inventoried Roadless Area.

8. Operations would be restricted to protect tribal cultural traditions and practices.
9. Operator would be held responsible for damage to cultural resource sites.

C. *Timing Limitations:*

Where standard lease terms and permit-level decisions are deemed insufficient to protect sensitive resources but where an NSO is deemed overly restrictive, the Forest Service would apply seasonal or time limited (TL) stipulations to leases. In general, timing limitations are used to protect resources that are sensitive to disturbance during certain periods. Such stipulations are generally applicable to specific areas, seasons, and resources. They are commonly applied to wildlife activities and habitat, such as winter range for deer and elk; nesting habitat for raptors and migratory birds; and breeding areas. Buffer zones that exclude ground disturbing activities are also used to further mitigate impacts from any human activities. The size of buffers can also be specific to species and location and can change based on findings of science or movement of species. Therefore, timing limitations would be applied by the authorizing officer as appropriate for the specific lease areas and in compliance with the unit's resource management plan. The Forest Service would consult with the appropriate agencies (e.g., state wildlife agencies) in establishing the periods and extent of area for timing limitations.

1. In areas identified as having sensitive plant species, ground-disturbing activities would be limited to periods outside of the growing season.
2. Migratory Bird Habitat – No ground disturbing activities would be allowed during nesting season unless a nest survey is completed prior to ground disturbance. A nest survey would be conducted by a qualified biologist within migratory bird breeding habitat prior to any surface disturbance associated with exploration activities during the avian breeding season (February 1 through June 1 for raptors and April 1 through Aug 30 for neotropical migrants, depending on location). If nests are located, or if other evidence of nesting (e.g., mated pairs, territorial defense, carrying of nest material, transporting food) is observed, a protective buffer would be delineated and the entire buffer area avoided to prevent destruction or disturbance to nests until they are no longer active. The start and end dates of the seasonal restriction may be altered based on site-specific information such as elevation and winter weather patterns, which would affect breeding chronology and the presence of the species.

D. *Sage-grouse Stipulation:*

1. Prohibit surface occupancy and surface-disturbing activities within 3 miles of an active lek. Standard exceptions apply (Nevada Governor's Sage-Grouse Conservation Team 2010). In addition, the exceptions may be granted in consultation with Nevada Department of Wildlife, depending upon the active status of the lek, location of existing infrastructure, or the

geographical relationship of topographical barriers and vegetation to the lek site.

2. For timing restrictions and additional guidance related to limiting impacts on sage-grouse, follow Nevada Department of Wildlife energy guidelines (Nevada Governor's Sage-Grouse Conservation Team 2010).

E. Contingency Rights Stipulation

1. BLM has reviewed existing information and planning resources documents and, except as noted in other attached stipulations, knows of no reason why normal development, subject to the controls of applicable laws and regulations and the lease terms and conditions, cannot proceed on the leased lands. However, specific development activities could not be identified prior to lease issuance since the nature and extent of geothermal resources were not known and specific operations have not been proposed. The lessee is hereby made aware that consistent with 43 CFR 3200.4, all post lease operations will be subject to appropriate environmental review and may be limited or denied only if unmitigatable and significant impacts on other land uses or resources would result.

F. Special Stipulation for Native American Consultation

1. All proposed exploration and development is subject to the requirement for Native American consultation before the BLM will authorize the activity. Depending on the nature of the proposed lease development and the resource of concern, the time to complete Native American consultation and to conduct any mitigation measures may extend the time for authorization. It may also change the ways in which developments are implemented. New lease applications would require Native American consultation.

G. Stipulation for Protection of Geothermal Features

1. The BLM would include stipulations to protect any significant thermal features of a National Park System unit that could be adversely affected by geothermal development. These stipulations will be added, if necessary, when the lease or permit is issued, extended, renewed or modified (43 CFR 3201.10[b]).
2. Any leases that contain thermal features (e.g., springs or surface expressions) would have a stipulation requiring monitoring of the thermal features during any exploration, development, and production of the lease to ensure that there are no impacts on water quality or quantity.

Appendix B

Comment Letters and Response to Comment
Letters on the Draft EIS

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Letter #1

From: nvshooter57@live.com on behalf of Deb Gieb <Obsqur@live.com>
Sent: Monday, January 02, 2012 11:10 AM
To: FS-comments-intermtn-humboldt-toiyabe
Subject: geothermal

1-1

I am in full favor of this project. Is is clean and will help out the economy and out country. Nevada should have more projects like this along with other types of projects to use our natural resources.

Please allow this project to proceed.

Debbie
Elko Nevada

Letter #2

Letter #2

No text was included in
email comment.

2-1 - No text in
comment

Letter #3



The Greater Austin Chamber of Commerce

PO Box 212
Austin NV 89310
775-964-2200

www.austinnevada.com

austinnvchamber@yahoo.com

January 4, 2012

Keith Whaley, Project Manager
Humboldt-Toiyabe National Forest
Bridgeport Ranger District
HC 62 Box 1000
Bridgeport, CA 93517

Re: Geothermal DEIS

Dear Mr. Whaley,

3-1 The Austin Chamber of Commerce appreciates the opportunity to comment on the DEIS for geothermal leasing on the Humboldt-Toiyabe National Forest. At their regular meeting of January 3, 2012 the Board of Directors reviewed your material and the board cast a unanimous vote to support the leasing of any and all Forest Service lands for geothermal projects. We support the entire concept, but feel that we should only comment on the Austin and Tonopah Districts Ranger districts, as they have a direct effect on our community

3-2 Geothermal power plants in central Nevada have been recognized as having potential for a vital industry in Nye and southern Lander County. By allowing these areas to be leased it has the potential to make a huge contribution to our economy. The revenue generated by the geothermal leases will have a major impact on both counties, generating more income. The leases also appears to have no adverse effects on areas already in use for recreation, i.e. designated mountain bike trails and future 4wd drive trails.

Our Chamber meets the first Monday of the month in the Chamber office in the Austin Court House at 10:00 am. The Board welcomes you or any of your staff to discuss this or any other issues at hand.

Thank you for the opportunity to comment on this plan.

Sincerely

Philip Williams
President Austin Chamber of Commerce

Cc: Austin Ranger District
Lander County Commissioners
File

Letter #4

From: Peter J. Smith <petersmith4444@sbcglobal.net>
Sent: Friday, January 06, 2012 1:45 PM
To: FS-comments-intermtn-humboldt-toiyabe
Subject: Geothermal DEIS - Grouse

4-1

There is a significant risk of impact to sage grouse in allowing geothermal exploration and drilling in the subject properties.

4-2

You may have seen the gas pipeline that the FERC plowed through the north end of the state, and that the BLM allowed to go through the densest concentration of leks. Now is the Forest Service going to have hundreds of roads plowed through its lands for drilling rigs to run exploratory wells first, then production facilities, then add power transmission?

4-3

I understand the Fales region is particularly critical for the grouse and just from the hot springs at Fales, Buckeye and behind Bridgeport it would seem to be the first place for geothermal exploration and development. How is the Forest Service going to protect the grouse?

P. Smith

=====
This e-mail and any attachment are privileged and confidential. If you have received this e-mail in error, please destroy it immediately.

Peter J. Smith, Esq.
300 West 2nd St.
Carson City, NV 89703
{775} 882-9441
fax 882-9056

Comments from Sheila Mallory, NV BLM Geothermal Program Lead

January 10, 2012

- 5-1 | 1. Page 1-10, 1.5.2, paragraph 1: Add “approved” to current plan of operation.
- 5-2 | 2. Page 3-1, 3.22, paragraph 3: Much of the GRO information is now defunct have been superseded by new regulations, and BLM is moving away from using them (It has been brought up to WO that the GRO policy needs to be officially reviewed and modified. Therefore would recommend not using GROs in the document.
- 5-3 | 3. Page 4-5, 4.2.3. Consider adding noise (in populated areas) from geothermal power plants as an impact (e.g. Stillwater Power Plant).
- 5-4 | 4. Page 4-95, 4.22.4. What “BLM regulations require that noise from geothermal activities be 65 dBA or less at the lease boundary?” It is in a GRO, but not a regulation (see comment 2).
- 5-5 | 5. Page A-3, second sentence. While it is general true that DNAs are used during lease sales, it is not true that BLM office “must prepare Documentation of Plan Conformance and NEPA Adequacy (DNA).” Sometimes, the field office must prepare an EA. Suggest changing the text to say something like lease parcels require NEPA analysis, and that if NEPA has already been completed, then this is documented in a DNA.
- 5-6 | 6. Page A-3, paragraph 2. Suggest changing “...a DNA can provide NEPA compliance...” to “... a DNA can **document** NEPA compliance...”
- 5-7 | 7. ***(This Comment is based on the assumption that the Leasing EIS is amending the FS LUP. If the EIS is not, then exception waiver and modification language is not necessary. However also note that new stipulations that are not within the analysis of the existing LUP cannot be developed.)***Page A-4, Exception, Modification, or Waiver Process, paragraph 1: the document states “...if any of the exception, modification, or waiver criteria *specific to the stipulation* were met...” What is this criterion? If the criteria are not specified then how will you know if the exception, waiver, or modification is in conformance with the LUP amendment (Leasing EIS)? BLM WO IM 2008-32 states in regards to exceptions waivers and modifications that “...This determination should be fully documented in the case file with an appropriate level of environmental review (i.e. it can be done at the drilling stage with an EA, but not if the information conflicts with the LUP)and made on a case-by-case basis...” The IM also states “...*It may be necessary to add, delete, or modify lease stipulations in the land use plan as a result of pre-lease issuance parcel reviews, statewide lease stipulation consistency reviews, plan amendments, changed circumstances on the ground, or changed resource protection priorities. This is accomplished and documented through either the plan maintenance or the plan amendment process...*”
- 5-8 | May also want to language to the document: that on National Forest Service system lands, the Forest Service is the authorized officer when granting a request for a waiver, exception or modification and that the Forest Service appeals procedures would apply

LANDER COUNTY PUBLIC LAND USE ADVISORY
PLANNING COMMISSION
JANUARY 11, 2012

Letter #6



Keith Whaley, Project Coordinator
Humboldt-Toiyabe National Forest
Bridgeport Ranger District
HC 62 Box 1000
Bridgeport, Ca. 93517
Re: Geothermal DEIS

Attention: Mr. Whaley:

6-1 The Lander County Public Land Use Advisory Planning Commission, at their January 9th, 2012 meeting, reviewed the Draft Environmental Impact Statement for Geothermal Leasing on the Humboldt-Tonopah National Forest, which includes Ely, Austin, Tonopah and Bridgeport Ranger District. They would like to take this opportunity to comment on the DEIS for Geothermal leasing on US Forest Service lands. We would like to lend our support, which includes the Austin and Tonopah districts, as this would have direct effect on the communities of Battle Mountain, Austin, in Lander County and surrounding areas.

6-2 Geothermal Power plants in Central Nevada is being recognized as having the potential for a vital industry in Nye and Lander County. Allowing these areas to be leased will make a huge contribution to our economy. The revenue generated by the geothermal leases will have a major impact on the rural counties. The leases would not appear to have any adverse effect on recreation uses, such as Bike trails, future ATV trails and other uses.

The LCPLUAP Commission would welcome any information on Geothermal or other issues pertaining to Public Lands. Our meetings are held on the first Monday of each month, at the Austin Courthouse, in Austin, Nv. at 5:00 p.m.

Thank you for this opportunity to comment on this plan.

Sincerely,

Philip Williams, Chairman, LCPLUAP Commission

CC: Austin Ranger District/ Lander County Commissioners

pw/jkb

Whaley, Keith -FS

From: Whaley, Keith -FS
Sent: Thursday, February 02, 2012 12:17 PM
To: Jennifer Thies (jennifer.thies@empfi.com)
Subject: FW: Geothermal EIS Public Meeting
Attachments: Lund Meeting Info.pdf

Importance: High

Jennifer...

Back at work and working my way through 231 e-mails. You may have this from a later note from Doug or Scott, but FYI anyway.

Looks like we may have missed the comment period time on page 6-3.

From: Noriega, Jose -FS
Sent: Friday, January 27, 2012 2:39 PM
To: Whaley, Keith -FS; Elliott, Susan G -FS
Cc: Higgins, Jeanne M -FS; Phillips, Stephanie A -FS; Lucich, Kathleen -FS; Stever, Deanna -FS
Subject: Geothermal EIS Public Meeting
Importance: High

Yesterday Afternoon I attended a small public meeting in Lund regarding the Geothermal Leasing DEIS. There were only 4 in attendance, however, two of them were representing irrigation districts in the valley. The meeting went well as we discussed the process, details of the project and what would likely occur next. We then went to the field and reviewed a number of their geothermal springs where they own the water rights and use them for irrigation. There were quite a number of springs with fairly large flows. The following are some highlights from the meeting:

- 7-1 • They have serious concerns that a geothermal and drilling in the area may disrupt the flows at their springs and adversely affect their water rights. The Valley around Lund and Preston are heavily dependent upon agriculture.
- 7-2 • We discussed potential impacts on wildlife, roadless areas, archeological sites, and potential risks to listed fish species in the geothermal springs in the valley.
- 7-3 • They indicated that they generally would support geothermal development, however, they felt that the potential risk in this area were just too great.
- 7-4 • They asked that the Forest Supervisor consider approving the other parcels for leasing but choose not to approve leasing in this area due to the potential risks.
- 7-5 • They raised a number of questions about several mistakes in the document and they indicated that they would identify those mistakes in their comments.
- 7-6 • They did raise one discrepancy that needs to be addressed ASAP. The Legal Notice and cover letter describe a 45 day public comment period, however, on Page 6-3 of the DEIS the document makes multiple references to a 90 day comment period on the DEIS. This may need to be addressed ASAP.

I am attaching the scanned sign in sheet and a document that they provided that they felt should have been considered in the DEIS. No public comment cards were filled out during the meeting. Let me know if there are questions.

Thanks



HUMBOLDT-TOiyabe NATIONAL FOREST GEOTHERMAL LEASING PROJECT
PUBLIC MEETING ON DRAFT ENVIRONMENTAL IMPACT STATEMENT - JANUARY 26, 2012
LUND, NEVADA

Name (please print clearly)	Organization/Company (if applicable)	Add me to Mailing List (yes or no)*	Complete Mailing Address (please print clearly)	E-mail Address (please print clearly)
Norris B Hendrix			P.O. Box 184	
Charles Brown	Preston Irrigation Co.	<input checked="" type="checkbox"/>	Preston Irrigation Company	
Charles Brown	White River Ranch LLC	<input checked="" type="checkbox"/>	HC 34 Box 34165 Ely NV 89301	
Roderick C. McKenzie	Lund Irrigation + Water Co.		P.O. Box 236, Lund, NV 89317	
SMITH ED	PERSON		LUND NV	

Ground-Water Conditions

By Lari A. Knochenmus¹, Randell J. Lacznik¹, Michael T. Moreo¹, Donald S. Sweetkind¹, J.W. Wilson¹, James M. Thomas², Leigh Justet¹, Ronald L. Hershey², Sam Earman², and Brad F. Lyles

¹U.S. Geological Survey

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Ground water in the study area is influenced by a combination of topography, climate, and geology. Ground water moves through permeable zones under the influence of hydraulic gradients from areas of recharge to areas of discharge, and this movement can be discussed in terms of local, intermediate, and regional flow systems (fig. 16). These ground-water terms are adopted from the terminology developed by Toth (1963) and Freeze and Cherry (1979), and are defined on the basis of depth of ground-water flow and length of the flow path. Local flow systems are characterized by relatively shallow and localized flow paths that terminate

at upland springs. Local springs are low volume, tend to have temperatures similar to annual average ambient atmospheric conditions and have discharge that fluctuates according to the local precipitation. Intermediate flow systems include flow from upland recharge areas to discharge areas along the floor of the intermontane valley. Within intermediate-flow systems, springs typically discharge near the intersection of the alluvial fan and the valley floor near the range front. Intermediate-flow system springs often are of moderate volume and tend to have less-variable flow relative to local springs.

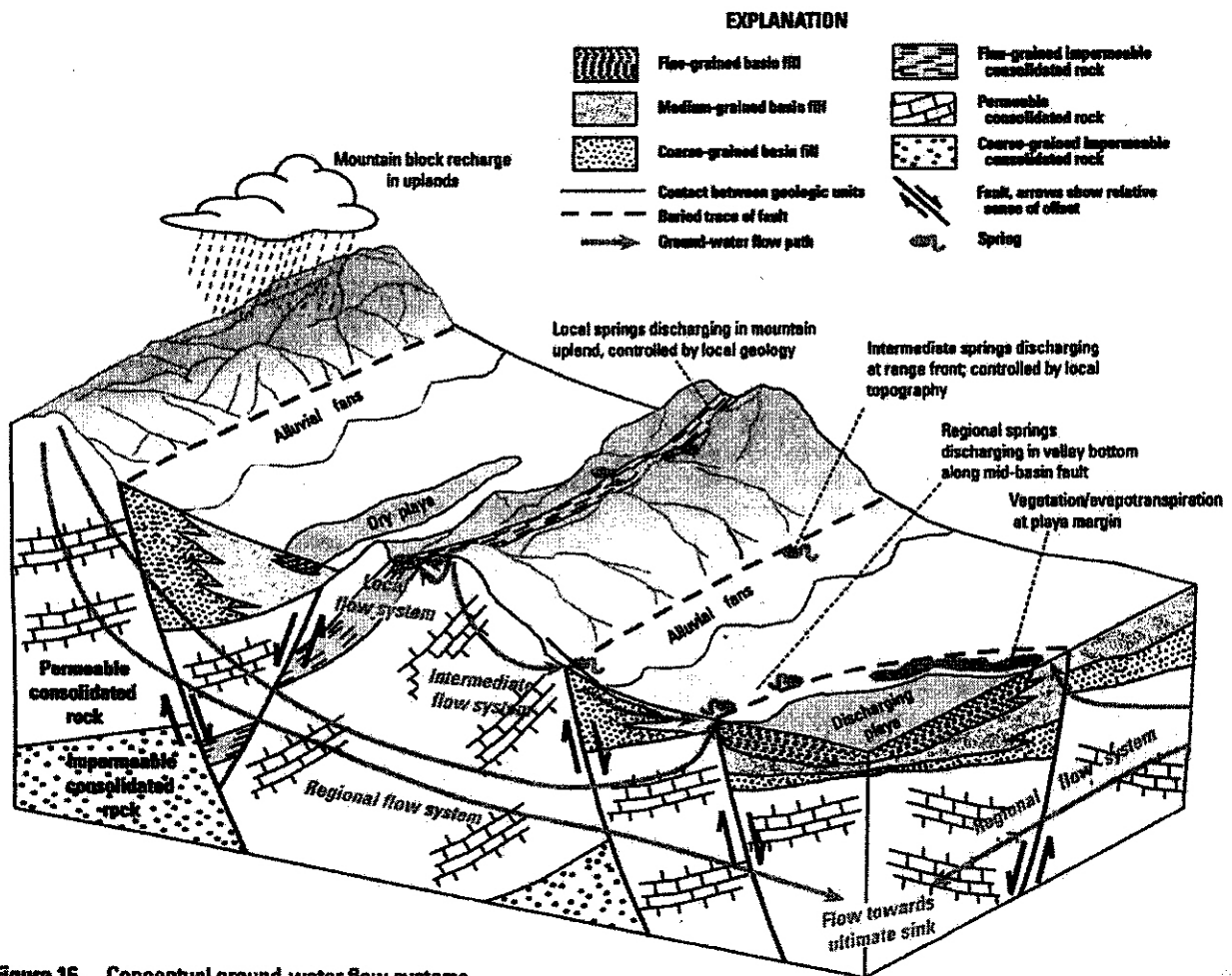


Figure 16. Conceptual ground-water flow systems.

Regional ground-water flow follows large-scale (tens to hundreds of miles) topographic gradients as water moves toward low altitudes in the region. Discharge from these regional flow systems manifests as large springs and, in some areas, extensive wetlands (Mendenhall, 1909). Meinzer (1911) recognized that certain large volume springs in the eastern Great Basin can not be supported by the available recharge from local surrounding mountain ranges, and that the flow from these springs must be supported in part from regional ground-water flow originating outside the basin. Based on chemistry, temperature, and other criteria, Mifflin (1968) identified some springs likely discharging interbasin flow, including Hot Creek in White River Valley and McGill Spring in Steptoe Valley. Regional ground-water flow is driven by hydraulic gradients that are continuous over long distances. Deep regional flow through basin-fill or consolidated bedrock aquifers is unconstrained by local topographic or drainage features. Under pre-development conditions, recharge to the regional ground-water flow system primarily originates in mountains and may travel beneath several basins and through multiple mountain ranges before reaching its ultimate discharge area.

Inputs to a ground-water system include direct recharge from precipitation, infiltration from lakes and streams, flow from an adjacent ground-water system, and recharge from human activities such as agricultural irrigation. Recharge is most prominent where water percolates into fractures in the bedrock of the mountain uplands and where streamflow infiltrates underlying or adjacent bedrock or alluvium at the range front or in the valleys (Harrill and Prudic, 1998).

Ground-water outputs from a basin include discharge from springs, discharge to streams and lakes, evapotranspiration (ET), flow across a ground-water flow system boundary to an adjacent system, and pumping for various uses. Activities such as ground-water pumping for agricultural uses and human consumption remove water from storage in a ground-water system and thereby reduce hydraulic heads, which are measured as ground-water levels in open wells. Ground-water pumping also can affect streams or springs in direct hydraulic connection with the ground-water system because declining ground-water levels can lead to increased recharge from streams and decreased springflow.

Areas of recharge and discharge were used as secondary data to develop water-level maps of hydraulic heads for shallow basin fill and deeper aquifers in the study area. Moreover, to better characterize these aquifers, water in storage was estimated for a representative volume of aquifer, and water-quality data were compiled and collected to assess water quality relative to primary and secondary drinking-water standards.

Ground-Water Flow

Ground-water flow was evaluated using a water-table map of the basin fill and a potentiometric-surface map of the regional carbonate-rock aquifer. The water table and potentiometric surface maps primarily were based on measured ground-water levels in wells. Water table and potentiometric-surface maps published in previous reports were used as secondary guides for developing these maps, particularly in areas where data were sparse (Mifflin, 1968; Hess and Mifflin, 1978; Garside and Schilling, 1979; Johnson, 1980; Pupacko and others, 1986; Thomas and others, 1986; and Bedinger and Harrill, 2005). Data used to develop the water-table and potentiometric-surface maps are summarized in Wilson (2007).

The water-table map was interpreted from water-level measurements for 299 wells completed in the basin-fill aquifer, and guided by geology, and known areas of recharge and natural ground-water discharge (pl. 2). Water-level altitudes above sea level ranged from less than 4,400 ft in northern Snake Valley to more than 6,800 ft in southern Steptoe Valley. Ground water in the basin fill generally flows from mountain fronts along the margin of valleys to the center of valley floors. Internally drained HAs, where water is lost by evaporative discharge, have closed, or nearly closed contours on the valley floors on plate 2. In some HAs, ground water in the basin fill flows parallel to the mountain front and toward the basin boundary, such as ground-water flow to the north in Steptoe and Snake Valleys and to the south in White River and Cave Valleys.

The potentiometric-surface map was developed using water levels measured in 119 wells (pl. 3). Because the number of wells completed in the deeper carbonate-rock aquifer are relatively sparse, the potentiometric-surface map of this aquifer represents a composite of water-level measurements for wells completed in basin fill (76 wells) and deeper geologic units including carbonate rocks (43 wells). Water levels measured in the basin fill wells were considered appropriate for mapping the potentiometric surface because there is regional hydraulic continuity between deep and shallow flow regimes (Bedinger and Harrill, 2005). Water-level altitudes ranged from less than 4,500 ft in northern Snake Valley to more than 6,500 ft in Steptoe Valley.

The source of ground water in the carbonate-rock aquifer within the study area is a relatively large recharge mound centered on the Snake, Schell Creek, and Egari Ranges (pl. 3). The recharge mound forms ground-water divides that separate the study area into multiple flow systems. Ground water in the carbonate-rock aquifer flows radially from these recharge areas to a number of HAs that form the headwaters of four regional flow systems. Ground water in west-central Steptoe Valley flows into Jakes and White River Valleys. Ground-water flow is toward the south in Long, Jakes, White

River, and Cave Valleys and is part of the Colorado regional flow system. Ground water in southern Steptoe Valley flows into Lake Valley and then moves east into Spring and Snake Valleys as part of the Great Salt Lake Desert regional flow system. Flow generally is toward the north-northeast in northern Steptoe, Tippet, and Snake Valleys. Although Butte Valley is considered part of the Goshute Valley regional flow system (Harrill and others, 1988), ground-water likely exits this valley to the north as part of the Ruby Valley flow system. Some regional ground water moves upward into overlying basin-fill sediments, such as in ~~southern~~ White River Valley and south-central Spring Valley, or is discharged from valley floor springs.

Volume of Water Stored in Aquifers

Water stored within aquifers becomes available as ground water is pumped and water levels decline. Water removed from storage by pumping commonly is referred to as "ground-water storage." When pumping ceases, water levels will not recover to previous levels if the amount of water removed is not replaced by an equal amount or if the declines may have altered the hydraulic or physical properties of the aquifer. The magnitude of water-level decline or recovery depends, in part, on the storage properties of the aquifer; that is, on whether ground water is unconfined (a water-table aquifer) or confined. Storage in a water-table aquifer represents the volume of water stored within the pore spaces of saturated unconsolidated sediment or rock that becomes available as the water table is lowered and the sediment drains. Under water-table conditions, storage is the product of the area of sediment or rock drained, the magnitude of the water-level decline in the drained area, and the specific yield of the drained sediment. Specific yield is limited by the porosity of the saturated sediment, but usually is less than the sediment porosity because some stored water is tightly bound to the sediment grains or the rock, preventing complete drainage of the pore water. For the study area, storage in the water-table aquifer is estimated as the water removed from basin-fill sediments under a specified decline in water level.

Storage in a confined aquifer represents the volume of water released as hydraulic head in the aquifer decreases, water expands, and sediment or rock material compresses. Under confined conditions, storage is the product of the area of confined aquifer where hydraulic heads are lowered, the magnitude of the hydraulic-head decline in the affected area, and the storage coefficient of the confined aquifer. In confined aquifers, the storage coefficient typically is between two to four orders of magnitude less than the specific yield.

Estimates of ground-water storage in water-table and confined aquifers in the study area are developed using the extent and thickness of basin-fill deposits, a specified water-level or hydraulic head decline, and estimates of specific yield or storage coefficient. The extent of saturated basin-fill deposits (fig. 17) is assumed to be equal to the area where basin-fill thickness exceeds 100 ft. The actual area of drainable basin fill is computed as the difference in area between saturated basin fill and fine-grained playa deposits (fig. 17 and appendix A). The subsurface extent of fine-grained playa deposits is assumed to be equivalent to the fine-grained marsh, playa, and alluvial-flat deposits delineated on the generalized geology map (pl. 1). The estimated acreage of drainable basin fill ranges from less than 100,000 acres for Cave, Jakes, Lake, Long, or Tippet Valleys to more than 350,000 acres for Snake, Steptoe, or White River Valleys. Snake Valley has the largest estimated acreage of drainable basin fill at nearly 600,000 acres (appendix A).

Ground-water storage estimates for each of the HAs in the study area are computed as the sum of the estimated unconfined and confined storage. A storage estimate including both unconfined and confined contributions accounts for potential pumping from the basin fill and carbonate-rock aquifers. Storage estimates (fig. 18 and appendix A) assume water-level and hydraulic-head declines of 100 ft, an average specific yield of 0.15, and an average storage coefficient of 0.0001. Storage estimates computed using these criteria range from less than 1 million acre-ft for Cave, Jakes, or Tippet Valleys to more than 3.5 million acre-ft for Snake, Spring, Steptoe, or White River Valleys. Storage estimates for the remaining HAs, Butte, Lake, Little Smoky, Long, and Newark Valleys, range from about 1.1 to 2.3 million acre-ft. Snake Valley has the largest estimated storage at nearly 9 million acre-ft. Unconfined storage accounts for more than 99 percent of the total storage estimated in any HA, whereas confined storage accounts for less than about 10,000 acre-ft of the total storage in any HA. Storage over the entire study area is estimated as described above, at about 36 million acre-ft, of which only about 30,000 acre-ft is contributed by storage from the confined system (appendix A). Storage, estimated by this procedure, is nearly linearly proportional to the decline in water level or hydraulic head and to the magnitude of the specific yield or storage coefficient. Water level and head declines of 100 ft were arbitrarily selected, but are considered reasonable to estimate ground-water storage and show linear relations between water-level declines and specific storage, and between head declines and storage coefficient. Estimates of storage do not account for any limiting geologic, hydrologic, or cultural factors, such as impermeable boundary conditions, recharge to basin fill or carbonate-rock aquifers, changes in water quality, or potential declines in springflow or water-level declines.

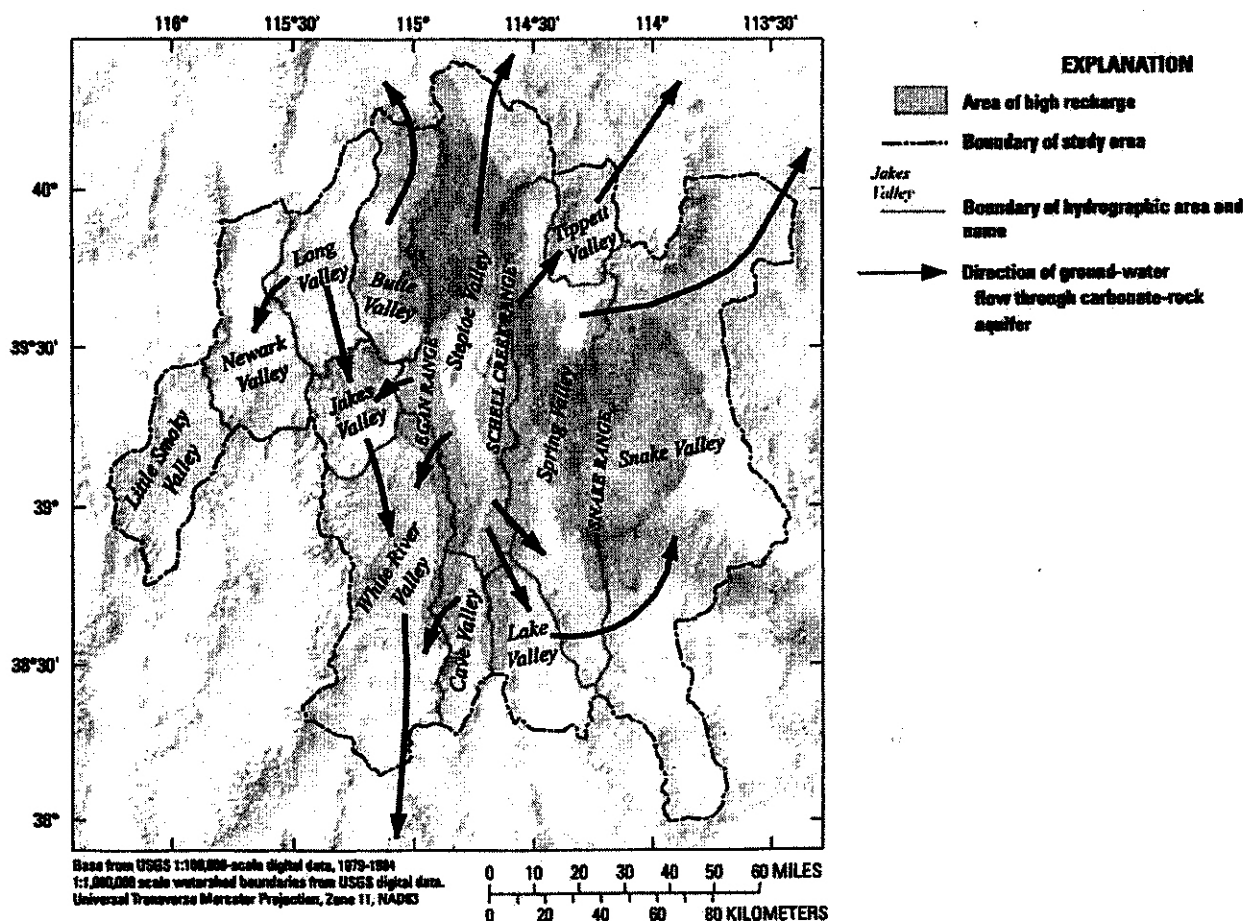
Aquifer Water Quality

The inorganic chemical quality of ground water generally is acceptable for human consumption. No discernable patterns of poor water quality have been found except for chloride concentrations in some ground water in northern Snake Valley that exceed secondary drinking-water standards. Only a small number of analyses of anthropogenic organic compounds in ground water are available. No exceedances of drinking-water standards have been reported.

Regional Ground-Water Flow

Carbonate rocks form much of the Egan, Schell Creek, and Snake Ranges, and the relatively high precipitation and recharge in these mountain ranges are the source for regional

ground-water flow in the carbonate-rock aquifer. The Egan Range is the primary source area for northward ground-water flow through Butte Valley, and southward flow through Long, Jakes, and White River Valleys, where ground water exits the study area and flows toward the Colorado River. The Egan and Schell Creek Ranges are the primary source areas for ground water in Steptoe Valley, where the highest water-level altitudes in the basin fill are found in the study area. Ground water flows northward through Steptoe Valley and southeastward through southern Steptoe, Lake, Spring, and Snake Valleys. The Schell Creek and Snake Ranges are the primary source areas for northeastward ground-water flow through northern Spring, Tippet, and Snake Valleys. Ground water exits the study area from Snake and Tippet Valleys and flows northeastward toward a terminal discharge area in the Great Salt Lake Desert.



Regional ground-water flow through the carbonate-rock aquifer.

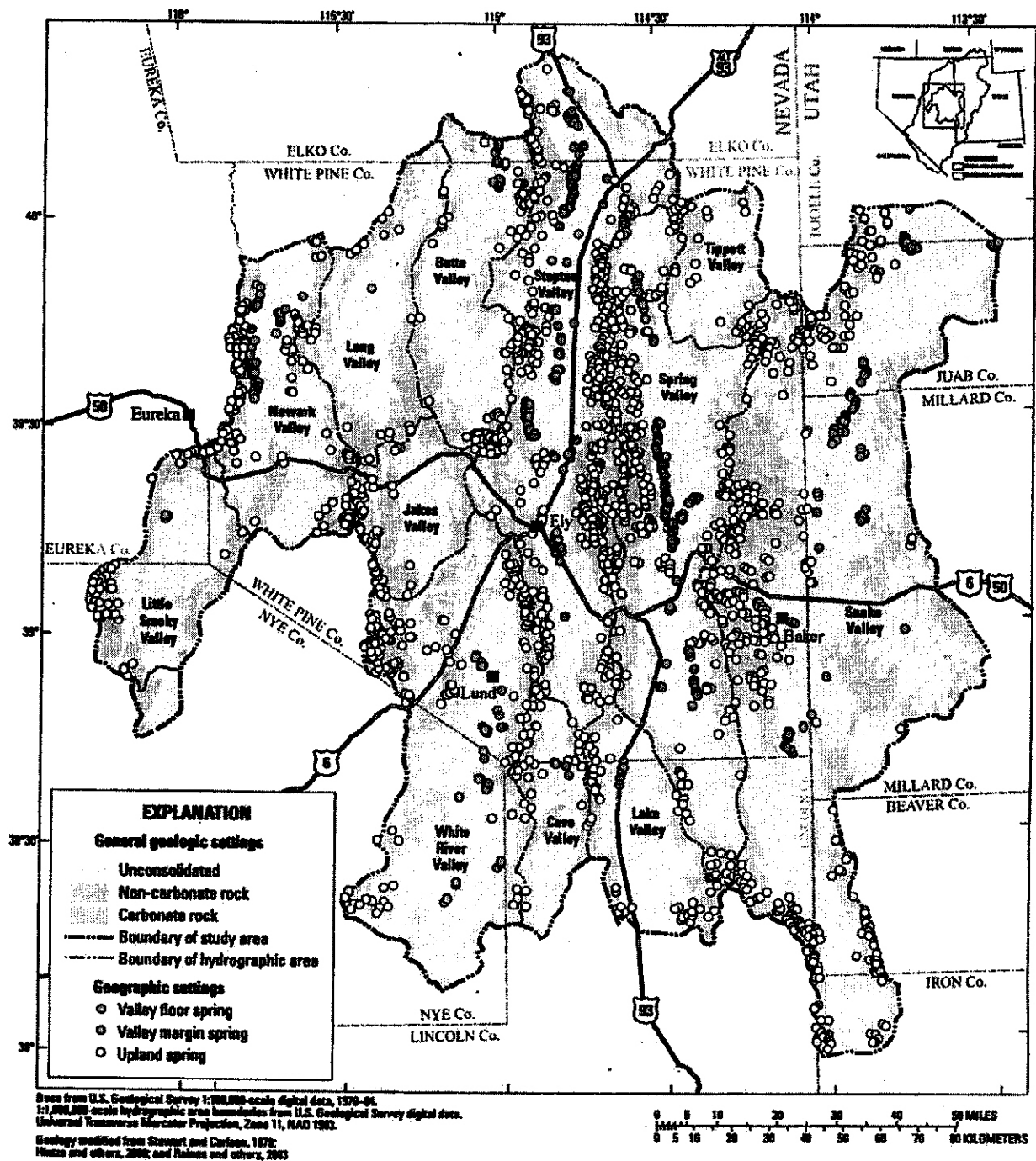


Figure 2. Hydrographic areas, springs by geographic setting, and simplified geology in the Basin and Range carbonate-rock aquifer system study area, Nevada and Utah.

From: Katie Fite <katie@westernwatersheds.org>
Sent: Tuesday, January 31, 2012 12:55 PM
To: comments-intermtn-humboldt-toiyabe-@fs.fed.us
Cc: Whaley, Keith -FS
Subject: Geothermal EIS

January 29, 2012

Mr. Keith Whaley
Project Coordinator
USFS Bridgeport RD
HC 62, Box 1000
Bridgeport, California
93517

RE: Geothermal Leasing on the Humboldt-Toiyabe Forest

Dear Forest Service,

8-1 Here are comments by Western Watersheds Project on the Forest Service proposal for large-scale geothermal leasing in Bridgeport Forest lands and other areas. We are alarmed at the degree to which the Forest and BLM propose to sacrifice critical sage-grouse and other habitats to geothermal developers. Case in point: Grass Valley Ormat geothermal near Austin. Despite the great importance of these lands for wintering for a population of sage-grouse, as well as nesting and other habitats, BLM allowed large-scale geothermal development to proceed. Plus the Forest authorized a harmful new electrical line under a greatly inadequate EA. BLM repeatedly minimizes, segments and piece meals NEPA to avoid taking a critical "hard look" at all direct, indirect and cumulative adverse impacts of such large-scale habitat and watershed alteration and destruction.

8-3 The Forest must not allow leasing of its lands to occur under the reckless BLM policies. It must develop a wide range of alternatives with much more protective provisions to prohibit leasing of sensitive lands, and to address stringent and protective INTEGRATED environmental protections in any lands where geothermal leasing and linked development is allowed to occur. Any development must be clustered. There is absolutely no need for this blanket analysis over a vast area.

8-4 The whole geothermal process is wrongly segmented. Large-scale disturbance and habitat destruction occurs under so-called "exploration" under minimal CEs or EAs. Sagebrush is bladed off and destroyed for well pads. Roads are built, permanently altering watersheds and wild land spaces. Then, incrementally amped up exploration bleeds/blends into full-blown "development" - with significant environmental damage having already occurred. So its almost like once lands have become so destroyed with disturbance under a series of "exploration" actions, BLM just concedes the rest -piece mealing it all in with CEs and EAs at the steps leading up to full blown industrial despoliation.

8-5

There is already a large disturbance Footprint in this landscape - and a cumulative impacts area that must include that of the affected Bi-State (Mono Basin) population of sage-grouse, as well as the other affected sage-grouse PMUS scattered across much of Nevada, Gold mining aquifer mining, oil and gas explo and development, irrigation, aquifer mining, and all manner of other harmful activities are being imposed on habitats and aquifers, including habitats for the sage-grouse population. The viability and habitat components for the Mono Basin grouse DPS, other PMUs, and identified local populations must be addressed in great detail. How can habitat and populations be best sustained and remain viable?

8-6

There are five Mono sub-populations, nearly all of which have birds at extremely low numbers. What are these numbers? Are they viable in the short, mid or long term? The interacting population, as well as pygmy rabbit and other rare species, must be fully considered here. So must any activities in private lands. Actions necessary for passive restoration must occur, and there should be no geothermal development or activity of any kind in any of these habitats that are already under so much stress. So passive and active restoration measure must be carefully examined, too. This does not just mean killing some more junipers and to cheat grass. It means greatly reducing or removing livestock, livestock infrastructure, roading, and other intrusions.

8-7

8-8

This EIS provides no basis whatsoever for understanding the environmental setting and context related to sage-grouse or any other component of the environment.

8-9

Critical Site-Specific Baseline Information Remains Lacking -This Shoddy Programmatic DEIS Is NOT Site-Specific

8-10

Why is the Forest wasting the public's time with this appallingly deficient and data-less EIS? The DEIS in its present form provides no basis at all for tiering future leasing or development actions to. Please provide a SEIS with much more information on current habitat, wild land, recreational, watershed and other conditions. There is no foundation laid for understanding direct, indirect and cumulative impacts to native vegetation, wildlife, watersheds, and wild lands from this very harmful proposal. There is no basis for developing alternatives unless the full degree and severity of degradation and threats are clearly revealed, and analyzed.

8-11

8-12

A reader of this shell of a DEIS obtains no real understanding of the ecological condition of the complex soils, complex native vegetation, microbiotic crusts, status of weed invasion and risk of further weed invasion, level and degree of existing disturbances (grazing, roading, mining, energy, transmission, military activity), habitat alteration and fragmentation, recreational and wild land use and importance, cultural significance and importance, of these lands totaling far over half a million acres area - and with blocks remotely located plus all their surrounding lands as well. Bridgeport lands to be leased span over half a million acres (607, 560).

8-13

How much geothermal leasing occurs on BLM or other lands - including on BLM lands across the Bi-state and other sage-grouse PMUs that are

8-13 | affected? Where are all leases - what else is going to be leased? Mapping of all leased areas, and potential areas - must be provided.

8-14 | How close are any of these areas to large-scale potential solar developments? Is solar or wind development also likely in this landscape?

8-15 | How will existing and foreseeable mining (for example, the gold mining where many claims have already been staked just across the border in CA in the Bodie Hills near Dry Lakes and elsewhere) affect wildlife, waters, watersheds, recreational, cultural values, water quality and quantity? How are vegetation treatments affecting native species? How many more acres, and where, are potentially to be disturbed and made more vulnerable to weed invasion and other losses through sagebrush

8-16 | "treatment", pinyon-juniper "treatment, etc.? This must be examined for the whole Bodie Hills region - for example the recent proposal for large-scale disturbance of sagebrush for supposed "fuels" purposes in sites - where some cheatgrass is already present and any removal of sagebrush will promote hotter, drier cheatgrass fire-prone sites. Fite field observations, Fall 2011.

8-17 | Where are all pending and existing geothermal leases? Who holds them? Does this mean than any protections that may come about as a result of this process will not be applied to existing leases and developments?

8-18 | How is this related, and does it comply with the direction in the Federal Register Notice for a new EIS for sage-grouse that includes the HT Forest Plan being amended?

8-19 | We are alarmed that leases issued under this DEIS may result in potential drilling through aquifers, fracing, use of all manner of unknown hazardous chemicals, placement of toxic "naturally occurring" materials from underlying strata onto land or their release into the air, weed expansion, loss of sagebrush - and thus sage-grouse migratory bird and songbird habitats as well as habitats for salt desert shrub and pinyon-juniper species, rare plants and rare plant habitats, loss of cultural sites, and loss of recreational uses and enjoyment through marring and destruction of wild lands.

8-20 | A full and detailed analysis of species habitats and viability must be conducted as part of this process, and a valid SEIS issued. There is greatly inadequate information in the current DEIS on rare, imperiled and sensitive species habitats and populations, including population viability, carrying capacity, sustainability, suitability and capability. This is a huge and diverse very arid wild land area with very limited potential to recover from the sever disturbances that geothermal activity would cause. We incorporate by reference the Bridgeport Ranger District's Great Basin South Rangeland EIS, and the entire Administrative record for that effort. To this day, there is no current valid NEPA analysis of the sever impacts of livestock grazing on the RD lands. WWP Appealed this deficient effort, and the Forest has done nothing for several years now. Alarmingly, the Forest had proposed to Open several Vacant llotments to extensive livestock disturbance. Nearly the entire Forest land, and much of the adjacent Bodie BLM lands are grazed by the hotel magnate

8-21 |

Hilton hobby ranch so there is no economic argument in support of grazing here.

8-22

A full current capability and suitability analysis must be provided as part of this process - as it is necessary to understand lands being grazed that are not capable of withstanding grazing use, or are not suitable for continued grazing use in the 2012 world faced with cheat grass (which will be exacerbated by geothermal development), climate change, plummeting wildlife populations, and dropping aquifers. This is necessary for a current scientific understanding of the footprint and impacts of disturbance activities.

8-23

The adverse impacts of cheatgrass increase due to this explo and development in promoting wildfire must be considered a significant issue and fully analyzed. This is exacerbated by continued grazing disturbance.

8-24

Only the most cursory and general information is provided. The Forest appears to be merely going through the motions to have a stack of paper it can point to and claim "analysis". The EIS provides no basis for development of a reasonable range of alternatives, or for adequate mitigation of any geothermal impacts.

8-25

If there is no adequate current baseline - including of such things as the serious adverse impacts of ongoing (and historical too) disturbances and degradation to soils, waters, watersheds, microbiotic crusts, habitats and populations of wildlife and other rare and imperiled species, riparian and upland areas, etc. - due to the direct, indirect and cumulative impacts of livestock grazing, facilities, roading, mining, transmission lines, agency veg and fuels "treatments", historic mining deforestation and impacts to wild lands and watersheds, etc. - how in the world can the Forest expect to use this EIS for any purpose other than to collect dust on a shelf? It cannot be tiered to for leasing and/or development. The BLM-wide PEIS is far too general and non-specific, and is mainly a laundry list of scattered and largely ineffective BMPs and the like. So why bother?

8-26

The burden is even greater here - since BLM is involved in Forest lands, and in many instances, BLM applies only the most meager of protections, and has had a general "anything goes" mindset that is not suitable to be applied to Forest lands. How are BLM lands to be managed differently than Forest lands? Ineffective and uncertain "SOPs" (Standard Operating Procedures), BMPs, etc. that BLM has been using in no way shape or form protect resources - as an example, the ugly habitat destroying and fragmenting highly intrusive Grass Valley geothermal project.

8-27

How much energy could be saved in Nevada by much greater conservation of resources - including through use of distributed energy and other technology? What additional development will be needed just to get power to population centers?

8-28

This is an extremely arid area - and any loss or degradation at all of surface waters due to geothermal development will have serious adverse impacts to a broad range of native biota.

8-28

Such losses are inevitable as "exploration" activities blade new roads, blade well pads, drill wells, fracture apart water-bearing strata of the earth to test geothermal reliability and in development. Leasing/explo blends "blends" into full-blown development under the very poor and segmented BLM process. Once blown to smithereens - strata - and thus aquifer layers - can never be put back in place.

8-29

The Forest must consider a full alternative that analyzes ALL impacts at the start - not the ever-more-incremental BLM process - where "leasing/explo" gets minimal analysis but has a cumulatively large footprint - and then blends into full-blown industrial development.

8-30

How much will any aspect of geothermal activity such increase potential for aquifer declines --- or earthquakes? Blasting or other activity may by de-stabilize underlying strata and alter underground waters and linked surface flows - including through likely future use of fracing and the battery of dangerous water-polluting chemicals that are likely to be used.

8-31

8-32

How will this combine with aquifer drawdown from hard rock and other mining, irrigation (as occurs at the private holdings), water mining and many other uses or activities already impacting aquifers? We are also greatly concerned that the aquifers (shallow, deep, link to surface water expression, etc.) are not adequately studied and defined.

8-33

What is the projected cone of depression from existing mining? What is it from proposed or foreseeable mining? What are the cumulative impacts likely to be?

8-34

How will the adverse impacts of climate change amplify these mining, irrigation, grazing desertification and water" development", geothermal, and other water losses and stresses?

8-35

Springs/seeps (What type are present? Where? How are they linked to aquifers or watersheds to be impacted? What is their current ecological condition and stresses on them? What biota is present and how healthy are the populations?), streams and other components of sage-grouse

8-36

brood rearing habitat, rare aquatic biota habitat, migratory songbird habitat, are all greatly jeopardized by this wholesale geothermal proposal.

8-37

Why is the geothermal mapping so old? DEIS shows it is from 2008 - hasn't a lot more info on ground and surface water in Nevada and California been developed in recent years?

8-38

What impact will the 21 existing geothermal plants in NV have? The plants in CA? Other energy projects? Mining? The cumulative impacts area must include a broad region of neighboring California. How many plants are honestly foreseeable?

8-39

DEIS 1-12 states that there are 65 geothermal projects in development in Nevada alone. So what impact will this have on aquifers already stressed to the breaking point?

8-40 We are greatly concerned at the current proliferation of all manner of energy proposals - and all the development and roading, powerlines, water stress and depletion, weed invasions that this entails.

8-41 All of the geothermal and other activity will result in increased roading, and seasonal disturbance of species habitats and populations already stressed by desertification and chronic livestock grazing disturbances.

8-42 The geothermal PEIS was superficial, and the SOPs, BMPs and near-nonexistent mitigation are greatly inadequate to protect sage-grouse, pygmy rabbit, migratory birds, aquatic resources, water supplies, etc.

This current HT EIS cannot suffice for "site-specific" analysis. It is in many ways just as superficial as the geothermal PEIS. It does not provide adequate site-specific analysis - including a valid environmental baseline or a realistic analysis of threats and foreseeable development.

8-43 This baseline is needed to delineate all areas that must be "off-limits" to development under a much-expanded range of alternatives that will protect Forest values for the American people. This includes all Mono Basin and other sage-grouse habitats, all pygmy rabbit habitats, rare species habitats, migratory birds, all roadless and unroaded lands, and visual and aesthetic values, too.

8-44 Wildlife will suffer disruption of mating, foraging, other behaviors. This action clearly conflicts with existing conservation plans and recovery goals (not to mention the new BLM sage-grouse EIS process), reduction in water (aquifer declines and surface expression on top of all the livestock water development damage, mining, other energy, irrigation, and climate change impacts), loss and/or fragmentation of wildlife habitat.

8-45 A much more detailed site-specific baseline must be provided. For example roading and current description of road types and impact analysis - density, mapping, weediness, etc. must be provided. All livestock infrastructure, veg /fuels/other treatments, seedings, etc. and all related impacts must be thoroughly mapped and impacts assessed.

8-46 How much does the existing burden of fencing impact wildlife and wild lands across this area of proposed leases/development? Won't this proposal add even more fencing, and other barriers and hazards to wildlife - including polluted waters that animals may try to drink? The "explo" stage of Grass Valley had ugly orange netting fence that could entangle animals- any development is likely to have permanent fencing.

8-47 We are greatly concerned about the impacts of this process on disruption of mating, foraging and other behaviors for migratory birds and raptors (noise, visual intrusions, habitat loss and fragmentation, etc.), the conflicts of this with existing recovery plans and goals, and the reductions in forage, water, space and loss or fragmentation of habitats that all phases of geothermal activity would cause. The TES species concerns are enormous. Many of the TES species in this area (pygmy rabbit, Mono Basin sage-grouse, for example) are already at every low

8-47

population levels and face a battery of existing threats - from cheatgrass to livestock grazing schemes that impose livestock use on top of breeding, or nesting sage-grouse or wintering habitats, on top of nesting migratory birds, or on top of pygmy rabbit burrows. How exactly is grazing conducted in the affected lands? What use levels, seasons, mandatory actions - are applied? Where is all current NEPA analysis of this action? What has actual use been? What is the current ecological condition/health of grazing-disturbed lands, habitats and watersheds?

8-48

8-49

How much of a threat does West Nile virus pose? How are livestock grazing activity (trampling and pocking of damp soils, and facilities such as stock ponds and water troughs and pipelines or water hauling, mine pits or discharge, irrigation, and other factors currently providing or expanding mosquito habitat? How will geothermal activity increase this - though pits, ponds, water discharges, etc.? What will the cumulative impacts be? What risk to habitats and populations does this pose?

8-50

Impacts on water quality and quantity including perennial surface flows, quality and productivity of native vegetation, and a host of other issues must be expanded upon in a SEIS.

8-51

How in the world could the Forest list wild horses as a significant issue, but not domestic livestock grazing - including that conducted by hobby rancher Barron Hilton and others where livestock are grazed and trailed over large areas in large numbers over all seasons of the year? Also, are there domestic sheep operations that threaten bighorn herds or prevent bighorns from occupying otherwise suitable habitats due to disease risks? How will this all place further stress on bighorns - or potentially displace them? The degree and severity of degradation from chronic livestock grazing disturbance must be assessed. A detailed analysis of carrying capacity, stocking rates, actual use (vs. permitted use), monitoring information, facilities location and impacts, and analyses of land degradation must be provided with and examined in detail in a SEIS. Mitigation must include retirement of grazing allotments.

Shallow, Greatly Deficient Alternatives and Analysis

8-52

Alt 1 and Alt. 2 are in reality quite similar. There is really no viable conservation alternative at all provided, nor is there valid baseline and site-specific analysis of No Action. Why can't NV or other renewable energy be accommodated on BLM and private lands? Why is it necessary to destroy the Forest, especially since BLM has been allowing willy-nilly energy project disturbance across Nevada -further imperiling sage-grouse, pygmy rabbit, migratory birds and other wildlife?

8-53

On DEIS Map 2-6, which attempts to portray alternatives, it is hard to distinguish sage-grouse areas from slopes, recreational facilities, water bodies, etc.

8-54

The Forest must clearly lay out and map sage-grouse and other rare species habitats including all animals and plants habitats, and detail threats - not just lump them all together as this EIS does.

8-55

The Forest alternatives appear to maximize industry desires - and to have limited NSO areas to the maximum degree possible. Plus limiting surface occupancy is not sufficient to protect aquifers and linked surface water flows, or likely weed spread, or the Footprint of access roading. These allow vast areas to be developed, disturbed and ultimately industrialized. It would allow intrusive ugly, noisy large-scale development in many areas despite a host of other conflicts- including old growth communities, highly scenic wild land settings and vistas, on top of erosion-vulnerable soils, on top of plunging aquifers, on top of rare species such as migratory birds and pygmy rabbit, and many other concerns.

8-56

The lek buffer is greatly inadequate. A five mile minimum buffer surrounding all important sage-grouse habitats must be considered. Plus, detailed overlays of habitat type and quality must be provided. Current ecological conditions, and connectivity must be analyzed and mapped. How, where and when do the native animals - from big game (bighorns, mule deer, antelope to mountain quail to sage-grouse) use these habitats at present? The lights, road noise, facility noise, increased nest, egg and other predators, etc. related to an industrial geothermal facility - or from "explo" using massive cranes and drill rigs that look like the Deepwater Horizon on dry land - and all the associated surface human disturbance and its impacts must be analyzed in much greater detail.

8-57

8-58

This is EIS greatly inadequate in its examination of all the factors and disturbances that accompany modern day geothermal explo and development - both below and above ground. Tis form understanding is needed to determine effects on species habitats and populations.

8-59

These are some of the worst alternatives, and worst depiction of alternatives we have seen in any recent agency document.

8-60

The DEIS's Grass Valley "proposed" area is right next to the BLM developed area and new transmission line it spawned on Forest land (done under a 2011 EA) - illustrating perfectly how agencies connive to segment analysis, and to avoid full and integrated NEPA analysis. There is no adequate context and setting provided on any of the maps of the similar Alts and Proposed Actions. Certainly this all was foreseeable - but the BLM in Nevada routinely violates NEPA and segments actions even when it knows full well that all manner of development is linked, and will ensue. We incorporate the record for the full project 2011 Grass Valley geothermal BLM and Forest process into this process - by reference.

8-61

The Controlled Surface Use parameters are greatly inadequate. Examples: A mere 500 ft. riparian buffer (sediment can erode down slopes, or in ephemeral and intermittent waterways), blasting, fracing, etc. in explo-development can greatly affect waters a considerable distance from a waterway - but those underground and/or headwater areas are in reality connected to the waterway. What are all flow rates for all waters for all seasons of the year? Is there data on how these may have changed over time?

8-62

8-63

We are alarmed that a large amount of data and info necessary for competent analysis and understanding of ecological impacts and

8-63

alternatives development and comparison is "not available". Why have you even bothered to put out a DEIS if all necessary site-specific baseline info is not available? WHY has the Forest overlapped buffers, visual, and IRAS in its mapping? Why has it made it impossible to distinguish each of these elements? WWP recently encountered what could only be described as purposefully dishonest and misleading mapping in the Ely Rangeland EIS - now we are seeing this same jumbled nonsense here.

8-64

Why is there not detailed information on recreational aspects - such as visual, noise, roading, weed or other intrusions into IRAS (or nearby BLM WSAs) that would occur? Of UIs? Of TES species? Sensitive species? Cultural? Other data and concerns? On increased wildfire due to all manner of disturbances, and weeds?

8-65

ALL sage-grouse habitats must be avoided by 5 miles under an expanded range of alternatives, along with all IRAs, roadless and other critical rare species habitats, as well as old growth vegetation communities.

8-66

Where are all old growth sagebrush, salt desert shrub, pinyon-juniper, to other communities located, and how will they be protected from roading, weeds, and other intrusions related to explo and development? How is

8-67

livestock grazing degrading all of the components - including composition, function and structure, at present?

8-68

It is not enough to just have "non-consent" for 3 miles around leks. Any buffer (no matter the size) must be applied to winter habitats, nesting habitats, brood rearing habitats. The grouse populations here are already very small. Detailed analysis of all of this must be provided in a SEIS.

We are greatly concerned that the core model is completely inadequate to protect Mono Basin and other sage-grouse in a Basin and Range setting.

The "core" model was developed in areas with large continuous stands of sage - not the naturally diverse and complex Basin and Range setting.

8-69

Plus, it sacrifices vast areas - including those where agencies just might not have much data - for any of a variety of reasons - hard to get to in mud season, expenses to overfly, private land access barred, etc. Details of how this modeling was developed and applied - as well as for all the many other models and assumptions used in the EIS, must be fully examined in a SEIS.

8-70

Sage-grouse cannot be the only species where stipulations are applied. A greatly expanded range of Alts, must effectively protect sage-grouse, and migratory birds, mountain quail, golden eagles, and other species, as well.

8-71

The Potential Production Capacity appears to be greatly under-estimated. Inadequate data is provided to understand how - and the quality of info - from which it is derived.

8-72

The Forest cannot rely on the general PEIS and its scattered lists of possible BMPs/SOPs for what it describes as (2-12): "estimates of disturbance based on the phases of geothermal leasing and development are discussed in the PEIS" - or for any other part of this EIS.

8-73

There is a confusing discussion of geothermal facility sprawl - where the Forest appears to be proposing that facilities be allowed to sprawl willy-nilly, and not be bundled. Sprawl cannot be allowed. The Forest must hone in on one or two very limited areas in Bridgeport, after determining where impacts would be least - and develop an alternative based on development only in these limited areas. The other areas are simply not suitable for development. This is the opposite of the current deficient alternatives.

8-74

What is the rationale for all of the assumptions made here - that "only" 50% of development would occur on the Forest - for example. If that is indeed the case - it shows that there is likely much more room for development to be bundled on private lands - so much less Forest land is necessary. Are there plans in the wings that the Forest is not revealing and fully discussing here? Where does this 50% (or any of the other assumptions) from the EIS really come from?

8-75

Austin, Ely, Tonopah Area: The maps don't even provide any reference - the Forest appears to be masking the locations and skimming over the baseline as much as possible.

8-76

How can the Forest go forward with this - when there is no basis?
Example: "Existing lit provides no estimate of geothermal potential for these areas". 2-13.

8-77

In reality, this entire shallow, cursory effort is YET ANOTHER PEIS - nearly devoid of critical data and analysis.

8-78

The Forest must Withdraw all lands not found suitable for this industrial development and disturbance - this includes ALL sage-grouse and pygmy rabbit habitats, important watersheds and connected springs, seeps, roadless areas and WSR and any areas adjacent to WSAs, etc.

8-79

How is the Ely parcel area related to the new SWIP powerline?

8-80

The FRDS (for example at DEIS 2-11, 2-12, etc.) are based on such limited and spotty info that no real analysis is possible.

8-81

The DEIS refers to "yet-to-be-identified areas" - this means there is tremendous uncertainty, and the Forest really has no idea what could occur. Why isn't there higher quality geothermal, geological, water, aquifer, etc. data found here?

8-82

RFD - This has four phases: Explo, drilling, utilization, reclamation abandonment. Each of these consists of a whole host of damaging and disturbing activities - from off-road travel crushing vegetation and collapsing animal burrows and spreading weeds to graveling well pads to huge new X mission lines, to disposal of toxic materials as sites are operated and reclaimed.

8-83

The light, and noise pollution must be analyzed in great detail.

8-84

The DEIS provides much too broad and uncertain a range - land areas directly disturbed from 53-367 acres - "total acreage of disturbance".

- 8-85 Plus WHAT would the visual, noise, pollution, and aquifer disturbance footprint of these factories in the desert really be?
- 8-86 Table 2-2 provides "disturbance estimates". They appear to be based on crushed, bulldozed, smashed vegetation/soil direct disturbance only. It does not provide any analysis of sound, visual, or other intrusion, and pernicious weed infestation and spread, or disruption of critical wintering habitat that could drive sage-grouse to extinction across this region, or herbicide use and drift after all manner of herbicides need to be used to try to control weeds in explo and development areas on top of grazing and other weed-spreading disturbances in this landscape.
- 8-87 The Footprint of ecological disturbance must be fully considered here, and fully mitigated - not just acres bulldozed. In reality, the Footprint of the linked explo, factories, noise, aquifer depletion and potential pollution, powerlines, roading etc. will be immense. It is also necessary to determine and analyze the adequacy of any mitigation that is applied.
- 8-88 Fault mapping. How will geothermal explo and development, and alteration of underlying aquifers - including as combined with mining or other blasting and serious disturbance - trigger earthquakes?
- 8-89 The mineral resource analysis is a joke. There is nothing of detail that examines the severe disturbance footprint that gold, potentially new materials mining like lithium, and other mining is very likely to have on these lands at the same time that all of this geothermal disturbance unfolds (roads and weed impacts, aquifer drawdown, noise, lights traffic - killing animals on roads, powerlines, etc.)
- 8-90 DEIS 3-24 to 3-26. There is no analysis of the current extent and ecological conditions of soils and microbiotic crusts. How is grazing, roading, etc .affecting soils and crusts? How will geothermal activity add to the disturbance problems?
- 8-91 DEIS 3-28-3-37. Ground, surface water - There is no adequate baseline of current conditions - and the degree of degradation and/or depletion provided. How bad are things already - including due to historic and chronic disturbances? This must be examined based - including based on current site-specific information. How severe are continued chronic grazing disturbances when conducted on top of a landscape that suffered large-scale losses of soils, waters, watershed processes, and vegetation community composition, function, and structure under "historic" uses and disturbances?
- 8-92
- 8-93 Water rights, current flows, changes in flows, over-allocations, stresses on aquifers, etc. all MUST be detailed.
- 8-94 WHY are springs not shown? Where is all flow data, analysis of adverse impacts of water developments, livestock use, stocking rates seasons of use, etc. on springs, seeps and streams not provided?
- 8-95
- 8-96 What toxic materials may be released into the air? Will steam increase inversions or ground level fog?

8-97

The Forest cannot limit its analysis to only those species of interest on its lands - since all of these activities will adversely impact species shared with BLM lands - and BLM has many different sensitive species - such as loggerhead shrike, sage thrasher, ferruginous hawk, golden eagle, etc. A SEIS must be prepared that examines all the disturbances, disruptions and losses to these species, too.

8-98

The DEIS air discussion fails to adequately address dust, herbicides, toxic materials - including those brought to the surface or used in the process, and their release into air, and then their effects on humans and biota, as well as likely on the ground and water where they will end up.

8-99

The DEIS is patterned after the dishonest, misleading and now abandoned HT Ely Westside Rangeland EIS in so many ways - for example - a meaningless Table of acres of vegetation with no mapping or any detailed analysis. This says nothing about their conditions, interspersion, disruptions, and location in the context of explo and development. WWP is Attaching its Appeal of that Decision, too - as it illuminates cumulative impacts of grazing - as well as the Forest's current pattern of producing hollow, dishonest documents lacking essential basic info.

8-100

The Forest cannot rely on a "review" for Fish and Wildlife. WHERE are current baseline inventories across the project area? There is no way to examine and determine direct, indirect and cumulative impacts unless current survey and habitat quality info is provided.

8-101

The descriptions of animals and their habitats are programmatic. 3-43 to 3-55. This is followed by substanceless TES section - see DEIS 3-55 to 3-80 for every empty statements made for species mentioned here.

8-102

For example, we have repeatedly inquired about mussel shells near Rough Creek - and asked the forest if these were California floater or other rare aquatic species - but the Forest has never bothered to answer this. Have there been thorough baseline inventories for all biota inhabiting springs, seeps, streams, playas, etc. - If so when, where, and what did they find?

8-103

We are concerned that the Forest discards species like yellow-billed cuckoo - especially since WWP has documented stockwater troughs on the Ely RD drowning migratory birds - that do not nest in an area, but that stop at scarce waters during migration. See Ely Westside Appeal (Attached).

8-104

Wild horses and burros, Livestock grazing. What are the adverse impacts of livestock grazing on the Powell and Montgomery WHTs? How are these linked to BLM lands? What is the current horse herd viability, grazing competition, disturbance from domestic livestock, etc. How is a thriving ecological balance being maintained? When and how was AML set? What is the current ecological condition? The Forest is clearly hiding from addressing domestic livestock grazing - it doesn't even provide the names of the grazing allotments - outside the WHTs. What kind of biased, anti-scientific madness is driving this shoddy geothermal effort? We are alarmed at the current leadership of the HT - where grazing has apparently been placed on some kind of pedestal - likely due to managers

8-104 | who are afraid of placing controls on the extensive disturbance and damage to sage-grouse and other habitats that it is causing occurring.

8-105 | Where are these raptor nests located (see 3-53) at least within a section. We find it very hard to believe that these are the only raptors. WHERE is all the California Game and Fish and other data? For golden eagles, and all other biota impacted in any way by this project's immense Footprint? Intensive surveys must be conducted.

8-106 | We are alarmed at the casual dispensing of rare plants and habitats. Where across this area have comprehensive rare plant (and rare animal surveys actually been conducted? This is necessary to know the basis for the Forest casting aside species at every possible chance. Example: Table 3-6. Again, what the forest has done is produce an empty, meaningless programmatic EIS.

8-107 | Bodie and Rough Creek watersheds must be fully protected for recovery of LCT. The damage to, or pollution from, surface or underground aquifers

8-108 | from this proposal may affect downstream waters in the Walker River or other ESA habitats. ESA consultation must occur.

8-109 | White River, Ellison Creek and Smith Creek are clearly adversely impacted - and two of these occur in the Ely Rangeland EIS area - yet there is no current NEPA analysis of grazing impacts, so no valid programmatic or any other analysis can possibly be conducted.

8-110 | The Forest must provide the highest visual and other protections to all roadless areas. The Classifications in 3-106 are completely invalid. The existing mining in or near this area is visible over a vast region. Modern geothermal plants can be every bit as visually intrusive as a mine - big access roads. Factory-like appearance, water impoundments, bright lights, noise, high levels of road traffic, etc.

8-111 | How will the darkness of night skies be protected? Where is there analysis of what all of this development will do to detract from recreational uses and enjoyment, and potentially disturb, stress or even kill wildlife - such as migratory birds that may be attracted to glowing bright lights in the middle of nowhere - and collide with high voltage wires?

8-112 | ALL of the cursory vapid analysis in Chapter 4 is based on a profound lack of environmental information in Chapters 2 and 3, and no valid conclusions of any kind can be drawn by the Forest.

8-113 | FEIS 4-1 states that the lease is commitment of the resource for potential future exploration, development, etc.

8-113 | So what WOULD the impacts to the environment be if all the acreage open for leasing under the very limited alternatives were leased and developed? Wouldn't this be orders of magnitude greater than that considered under the EIS scenarios? Then what if all the gold or other mining, and any oil and gas claims, too - in or near these areas - are also developed?

8-114

If 3 to 6 power plants are built in Bridgeport, then one each in the other areas would be built - then why lease the entire huge area that would be leased under the proposed or only alternative action? Why not simply identify the areas now, require Bridgeport be bundled in a single area? This whole process makes no sense.

8-115

The sage-grouse analysis relies on old outdated information and is greatly inadequate to identify and understand impacts, or to develop integrated mitigation to protect and sustain and recover habitats and populations.

8-116

The Forest must also analyze potential financial speculation on leases and explo - and the damage that may be done.

8-117

The Forest needs to prepare a SEIS - or scrap this whole meaningless exercise.

8-118

Al the adverse impacts of roading, energy development, and threats posed by invasive species and grazing to which invasive species arelinked, must be fully analyzed based on current scientific information - see USFWS March 2010 Warranted But Precluded finding for Greater sage-grouse, see Knick and Connelly (2009) Studies in Avian Biology. See Literature on cd.

Sincerely,

Katie Fite
Biodiversity Director
Western Watersheds Project
PO box 2863
Boise, ID 83701

Letter 9

From: Skip Canfield <scanfield@lands.nv.gov>
Sent: Tuesday, January 31, 2012 9:38 AM
To: Whaley, Keith -FS; FS-comments-intermtn-humboldt-toiyabe
Cc: Skip Canfield
Subject: Nevada State Clearinghouse Comments DEIS - Geothermal
Leasing on the
Humboldt-Toiyabe National Forest
Attachments: E2012-098 NDOT 2.pdf; E2012-098 NDWR.pdf

The Nevada State Clearinghouse provides the attached comments and the comments below regarding this project.

Skip Canfield, Program Manager
Nevada State Clearinghouse
State Land Use Planning Agency

901 South Stewart Street, Suite 5003
Carson City, NV 89701
775-684-2723
www.lands.nv.gov

Comments from State Land Use Planning Agency:

The Nevada Division of State Lands and the State Land Use Planning Agency offer the following comments:

9-1 Multiple use activities on Nevada's public lands are supported and encouraged. There are continuing concerns about the cumulative visual impacts to public lands users' experiences from certain activities (temporary and permanent). Some notable activities include proliferation of new roads, poorly-sited and designed structures, lack of co-location of infrastructure and improper lighting, to name a few.

9-2 There is a concern about the cumulative visual impacts to public lands users' experiences. For example, dark sky attributes are a finite resource and subject to increasing deterioration as inappropriately-lighted development covers the landscape. This is even more evident in remote stretches of Nevada where dark skies prevail yet are seriously impacted by even one new lighting source.

9-3 A comprehensive look at visual impacts should be considered when federal agencies review any development plan on public lands in Nevada, and nationally. The Nevada Division of State Lands encourages federal agencies to develop a consistent policy and "condition of approval" that

9-4 can be required of applicants and included in NEPA decisions. It is hoped that all Federal agencies would include dark sky lighting and other visual resource protection and mitigation as a condition of approval for permanent and temporary applications.

The following language is suggested that should be provided up front to applicants who propose development on public lands that includes lighting:

Utilize appropriate lighting:

9-5

- Utilize consistent lighting mitigation measures that follow "Dark Sky" lighting practices.
- Effective lighting should have screens that do not allow the bulb to shine up or out. All proposed lighting shall be located to avoid light pollution onto any adjacent lands as viewed from a distance. All lighting fixtures shall be hooded and shielded, face downward, located within soffits and directed on to the pertinent site only, and away from adjacent parcels or areas.
- A lighting plan should be submitted indicating the types of lighting and fixtures, the locations of fixtures, lumens of lighting, and the areas illuminated by the lighting plan.
- Any required FAA lighting is exempt from this condition, but should be consolidated and minimized wherever possible.

In addition, the following mitigation measures should be employed.

9-6

- Utilize building materials, colors and site placement that are compatible with the natural environment:

9-7

- Utilize consistent mitigation measures that address logical placement of improvements and use of appropriate screening and structure colors. Existing utility corridors, roads and areas of disturbed land should be utilized wherever possible. Proliferation of new roads should be avoided.

9-8

- For example, the use of compatible paint colors on structures reduces the visual impacts of the built environment. Using screening, careful site placement, and cognitive use of earth-tone colors/materials that match the environment improve the user experience for others who might have different values than what is fostered by built environment activities.

9-9

- Federal agencies should require these mitigation measures as conditions of approval for all permanent and temporary applications.

Skip Canfield
State Land Use Planning Agency

Skip Canfield

From: Compton, Mary T [tcompton@dot.state.nv.us]
Sent: Tuesday, January 31, 2012 8:07 AM
To: Skip Canfield
Subject: RE: E2012-098 DEIS - Geothermal Leasing on the Humboldt-Toiyabe National Forest - US Forest Service

Please see NDOT's remarks in the comments section. Thanks, Terri

From: Skip Canfield [<mailto:scanfield@lands.nv.gov>]
Sent: Wednesday, December 21, 2011 9:38 AM
To: Compton, Mary T
Subject: E2012-098 DEIS - Geothermal Leasing on the Humboldt-Toiyabe National Forest - US Forest Service



NEVADA STATE CLEARINGHOUSE

Department of Conservation and Natural Resources, Division of State Lands
901 S. Stewart St., Ste. 5003, Carson City, Nevada 89701-5246
(775) 684-2723 Fax (775) 684-2721

TRANSMISSION DATE: 12/21/2011

Department of Transportation

Nevada SAI # E2012-098

Project: DEIS - Geothermal Leasing on the Humboldt-Toiyabe National Forest

Follow the link below to find information concerning the above-mentioned project for your review and comment.

[E2012-098](#)

- Please evaluate this project's effects on your agency's plans and programs and any other issues that you are aware of that might be pertinent to applicable laws and regulations.
- Please reply directly from this e-mail and attach your comments.
- **Please submit your comments no later than Monday, January 30, 2012.**

[Clearinghouse project archive](#)

Questions? Skip Canfield, Program Manager, (775) 684-2723 or clearinghouse@state.nv.us

____No comment on this project ____Proposal supported as written

AGENCY COMMENTS:

10-1

The maps that are part of the proposed geothermal leasing (E2012-098 DEIS - Geothermal Leasing on the Humboldt-Toiyabe National Forest - US Forest Service) have been reviewed for conflicts with existing or proposed Material Site Right of Way (or access roads). I find no conflicts and support development of USFS administered lands.

Lou Groffman, E.I.

Supervisor, Material Sites | Nevada Department of Transportation
1263 South Stewart Street, Carson City, Nevada 89712
M&T phone (775) 888-7791 FAX (775) 888-7055 CELL (775) 721-9242
lgroffman@dot.state.nv.us

Signature:

Date:

Distribution: Alisanne Maffei, Department of Administration
Sandy Quilici, Department of Conservation & Natural Resources
Gary Derks, Division of Emergency Management
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Nancy Boland, Esmeralda County
Kirk Bausman, Hawthorne Army Depot
Sherry Rupert, Indian Commission
Skip Canfield, AICP, Division of State Lands
Dave Ziegler, Legislative Counsel Bureau
Cory Lytle, Lincoln County
Zip Upham, NAS Fallon
Ed Rybold, NAS Fallon
CPT Brian Brian Hunsaker, Nevada National Guard
Alan Coyner, Commission on Minerals
D. Driesner, Commission on Minerals
Lowell Price, Commission on Minerals
John Walker, Nevada Division of Environmental Protection
Terri Compton, Department of Transportation
Timothy Mueller, Department of Transportation
Steve Siegel, Department of Wildlife, Director's Office
David Catalano, Department of Wildlife, Fallon
Mark Freese, Department of Wildlife
Alan Jenne, Department of Wildlife, Elko
D. Bradford Hardenbrook, Department of Wildlife, Las Vegas
Robert Martinez, Division of Water Resources
Tod Oppenborn, Nellis Air Force Base
Ms. Deborah MacNeill, Nellis Air Force Base
William Cadwallader, Nellis Air Force Base
99ABW, Nellis Air Force Base
Octavious Q. Hill, Nellis Air Force Base
James D. Morefield, Natural Heritage Program
Jennifer Newmark,
Linda Cohn, National Nuclear Security Administration
Jennifer Scanland, Division of State Parks
Colleen G. Janes, State Purchasing Division

Mark Harris, PE, Public Utilities Commission
Jason Woodruff, Public Utilities Commission
Pete Konesky, State Energy Office
Rebecca Palmer, State Historic Preservation Office
Terry Rubald, Nevada Department of Taxation, Local Government, Centrally Assessed Property
Karen Moessner,
John Muntean, UNR Bureau of Mines
Jon Price, UNR Bureau of Mines
David David, UNR Bureau of Mines
Clearinghouse, zzClearinghouse

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Nevada SAI # E2012-098

Project: DEIS - Geothermal Leasing on the Humboldt-Toiyabe National Forest

AGENCY COMMENTS:

11-1

All waters of the State belong to the public and may be appropriated for beneficial use pursuant to the provisions under Chapters 533 and 534 of the Nevada Revised Statutes (NRS), and not otherwise. Any water developments constructed and utilized for a beneficial use whether surface or underground must be done so in compliance with the referenced chapters of the NRS. All exploration boreholes must be

11-2

plugged and abandoned according to the Nevada Administrative Code Chapter 534.

11-3

An "OG" waiver must be obtained from the Nevada Division of Water Resources before water can be used for drilling of exploration wells.

Joseph E. DiTucci

1/30/2012

Letter 12

(letter as a supplement to letter #8 not
project related letter)

From: Katie Fite <katie@westernwatersheds.org>
Sent: Tuesday, January 31, 2012 2:39 PM
To: FS-comments-intermtn-humboldt-toiyabe
Cc: Whaley, Keith -FS
Subject: Geothermal EIS
Attachments: EWE APPEAL MERGED November 15.pdf

Dear Forest Service,

Please the concerns about ecological conditions, as raised in this Appeal, into the Project Record for the Bridgeport, Ely, Tonopah and Austin geothermal leasing EIS" Geothermal Leasing on the Humboldt-Toiyabe National Forest. This appeal includes lands of the Ellison and White River watersheds - and is symptomatic of conditions across Forest lands in all the Ranger Districts

Thank you,

Katie Fite
Western Watersheds Project
PO Box 2863
Boise, ID 83701



January 27th, 2012

Keith Whaley
1200 Franklin Way
Sparks, NV 89431

RECEIVED JAN 31 2012
JAN 31 2012
MINERALS

Dear Mr. Whaley,

Please accept the following comments regarding the Humboldt-Toiyabe National Forest's recently completed DEIS for geothermal leasing. The comments are from enthusiastic filmgoers at the Wild & Scenic Film Festival in Nevada City.

Thank you for your time and hard work!

Sincerely,

A handwritten signature in dark ink, appearing to read "Alli Harvey".

Alli Harvey
Membership Coordinator
Nevada Wilderness Project



Geothermal Leasing on Humboldt-Toiyabe National Forest

Attn: Keith Whaley

1200 Franklin Way, Sparks, NV, 89431

Dear Mr. Whaley,

I am writing regarding the Humboldt-Toiyabe National Forest's recently completed Draft Environmental Impact Statement (DEIS) for geothermal leasing on/around 615,230 acres on the Bridgeport, Austin, Tonopah, and Ely Ranger Districts.

13-1

I am in support of Alternative 2, **which would protect sage grouse habitat**. I think you took appropriate measures to protect sage grouse and support you in consenting to leasing of the areas to the BLM under those conditions.

Thank you very much for accepting comments on this important plan.

Sincerely,

Name:

Jessica Brown

Address:

Phone Number:

***E-mail:**

jlb064@yahoo.com.

RECEIVED
JAN 31 2012
MINERAL

From: Gregg & Joanne Tanner <tannergj@gmail.com> on behalf of Gregg Tanner
<gregg.tanner@wildnevada.org>
Sent: Wednesday, February 01, 2012 10:55 AM
To: Whaley, Keith -FS
Cc: John Tull
Subject: Geothermal DEIS

The Nevada Wilderness Project
333 Flint Street
Reno, Nevada 89501

The Nevada Wilderness Project, a non-profit conservation organization based in Reno, Nevada, has reviewed the Draft Environmental Impact Statement for Geothermal Leasing on the Humboldt Toiyabe National Forest. We appreciate the opportunity to comment on the subject document.

We support Alternative #2 entitled "The Proposed Action with Enhanced Stipulations for Sage Grouse and Traditional Cultural Properties." We are well aware of the impending potential listing of the Bi-state and rangewide populations of the Greater sage grouse, and we understand the need for the stipulations as identified in that draft alternative. We strongly encourage the Humboldt Toiyabe National Forest to be diligent in your efforts to help preclude a listing of this iconic bird in all of your management and decision processes.

From: Dillingham, Eric -FS
Sent: Thursday, February 02, 2012 8:31 AM
To: admin@bridgeportindiancolony.com
Cc: Whaley, Keith -FS; ghaverst@blm.gov
Subject: RE: H-T Geothermal questions (comment from Ron Johnny, BP tribal admin)

Hi Ron,

I'm forwarding on your comment to Keith Whaley in our Bridgeport Ranger District Office as the Bridgeport Tribal Administrator and as a Northern Paiute-Shoshone (Ft. McDermitt) tribal member; and Greg Haverstock, BLM-arch, for your notes on Travertine Hot Springs.

Eric

From: admin@bridgeportindiancolony.com
[mailto:admin@bridgeportindiancolony.com]
Sent: Wednesday, February 01, 2012 2:31 PM
To: Dillingham, Eric -FS
Subject: RE: H-T Geothermal questions
Importance: High

Eric,

How u (How are you).

Yes, I think Justin and the Tribal Council asked really good questions, especially those last night.

Although I am also Northern Paiute, I am not a member of this Tribe.

The Bridgeport Indian Colony Tribal Council Chairman, John Glazier, and I have had several talks about geothermal development issues. Tribal member, and Tribal Council, concerns seem to be the same here as they are in Nevada; in the 1980s I was the Tribal Council Chairman of the Fort McDermitt Paiute-Shoshone Tribe of Nevada and Oregon (Fort McDermitt), and between Sept 2007 and June 2011, I was the acting administrator and environmental coordinator for another Northern Paiute Tribe in northern Nevada. Being related by blood, Northern Paiute Nation Tribes and Western Shoshone Tribes had identical positions to those Chairman Glazier and I have discussed.

Any geothermal project, obviously subject to further official comment by Tribal Councils, must not interfere with our People's traditional use of historic sacred, surface waters (hot, warm or cold) for ceremonial purposes, and on the environmental side, not pollute those sacred sites.

In my capacity with with another Northern Paiute Tribe over the last four years, we worked with the Battle Mountain (Nevada) BLM Office to ensure that geothermal site development and construction allowed the People's access to all sacred, traditional, historic, ceremonial sites. As you might guess, our People have not left waste (garbage or trash) at or near sacred surface water sites.

15-2

I have been to the hot springs, which you refer to as "Travertine". I assume you know that is a historic, sacred, site, and that there are several traditional forms of food and medicine growing and existing there. It personally disturbed me to see the sacred, historic water and land immediately adjacent the water being polluted: cigarette butts left in the water pools; graffiti in algae and other life forms and on

15-3

rocks; dog feces (at least I hope it was dog--it was not coyote); etc. I do not know the extent by which the pollution contaminates our traditional foods and medicine but such acts cause me, individually, to reconsider using valuable traditional foods and medicine that are there.

Sincerely,
Ron Johnny

Ron Eagleye Johnny
Tribal Administrator

Bridgeport Indian Colony
(a federally recognized Indian Tribe)
355 Sage Brush Drive
Bridgeport Indian Colony
Phone: ((760) 932-7083
Email: admin@bridgeportindiancolony.com
Website: <http://www.bridgeportindiancolony.com>

Mailing address:
P.O. Box 37, Bridgeport, CA 93517
Fax: (760) 932-7846

Letter #16
(Attachments for letter
#12)

FEB - 6 2012

January 29, 2012

RECEIVED

FEB 06 2012

MINERALS

Mr. Keith Whaley
Project Coordinator
USFS Bridgeport RD
HC 62, Box 1000
Bridgeport, California
93517

RE: Geothermal Leasing on the Humboldt-Toiyabe Forest DEIS

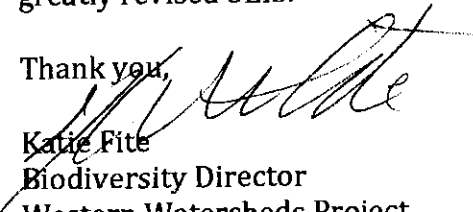
Dear Forest Service,

16-1

Here is a cd with sage-grouse and other literature relevant to the current HT Geothermal EIS process.

There is also a cd with WWP's Appeal of the Bridgeport and Ely Westside Rangeland EISs. Please include all the project record for these projects into the Bridgeport Geothermal EIS - and a greatly revised SEIS.

Thank you,


Katie Fite
Biodiversity Director
Western Watersheds Project
PO Box 2863
Boise, ID 83701

FEB - 6 2012

Feb. 2, 2012

Keith Whaley,
Humboldt-Toiyabe National Forest
HC 62 Box 1000
Bridgeport, CA 93517-1000

RECEIVED

FEB 06 2012

MINERALS

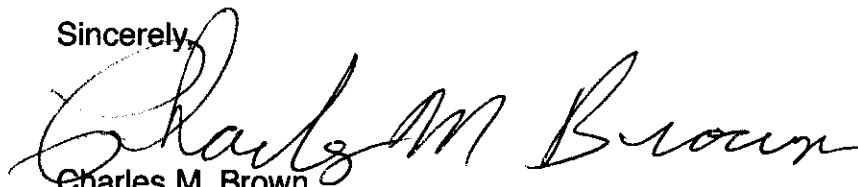
Dear Mr. Whaley,

- 17-1 I support the Geothermal project in general, however I recommend not leasing the Ely Decision Area. Because, 1. it is a roadless area, 2. there are many Indian artifacts in this area, 3. the possibility of changing the water flow for the Preston Area, White River Ranch and our Hot Spring Water. An example is the exploration of Jerritt Mine on Forest Land, which drained springs and the Little Humbolt River.
- 17-2
- 17-3

Some of the information is incorrect or confusing in the DEIS document. It states we have a 45 day period for an appeal and on another reference it says we have 90 days. (505) Which is correct?

- 17-4 I definitely oppose this leasing of the Ely Decision Area. I will seriously consider legal action if my water supply at the Hot Springs or water for irrigation is affected.

Sincerely,


Charles M. Brown
White River Ranch

Charles Brown
HC 34 Box 34165
Ely, NV 89301

HUMBOLDT-TOIYABE NATIONAL FOREST

GEOTHERMAL LEASING PROJECT

LOCATION:

LUND, NEVADA



PUBLIC MEETING DATE: JANUARY 26, 2012

COMMENT CARD

Please check your affiliation below:

<input type="checkbox"/>	Individual (no affiliation)
<input type="checkbox"/>	Private Organization
<input type="checkbox"/>	Federal, State, or Local Government
<input checked="" type="checkbox"/>	Citizen's Group
<input type="checkbox"/>	Elected Representative
<input type="checkbox"/>	Regulatory Agency

Name: Charles Brown
 Organization (if applicable): Preston Irrigation Co.
 Street Address (optional): HC 34 Box 34163
 City/State/Zip (optional): ELY, NV
 Phone # (optional): 775-238-0703

If you wish to provide written comments, please write your comments below (use back if needed). Thank you.

Comments:

I am not in favor of having the geothermal project in the Fly area because I am afraid it will have adverse effects on our farm irrigation and will cause our hay crops and fields to dry up. Farming and Ranching is our livelihood. We could lose our water supply. The area is a roadless area and also contains many Indian artifacts. (over.)

Please submit tonight or mail/fax by February 13, 2012 to:
 Keith Whaley, Humboldt-Toiyabe National Forest, HC 62, Box 1000,
 Bridgeport, CA 93517-1000

Fax: 760-932-5899

E-mail: comments-intermt-n-humboldt-toiyabe@fs.fed.us

Mr. Whaley -
 I finally found
 the comment card
 Hope this helps
 Mrs. Laurelie
 Brown

18-1

18-2

18-3

NOTE -
 The front page of this card was faxed to me on 02/07/2012 by Mrs. Laurelie Brown, spouse of Charles Brown. On 02/20/2012 I called the Brown residence and spoke w/ Mrs. Brown. After searching she called saying she could not locate the card. Today I received this fax with second page.
 K. Whaley
 02/06/2012

I am definitely opposed to this
plan for the Ely Area -

I could support the Geothermal
Project if it did not have
negative results for people who
are trying to make a living
needing land and water.

18-4

Charles Brown



Humboldt-Toiyabe NF, Bridgeport RD
Keith Whaley, Project Manager
HC 62, Box 1000
Bridgeport, CA 93517

February 12, 2012

Via e-mail: comments-intermtn-humboldt-toiyabe@fs.fed.us

RE: Comments on the Humboldt-Toiyabe Geothermal Leasing Project DEIS

Dear Mr. Whaley:

On behalf of The Center for Biological Diversity ("Center") and the Nevada Wilderness Project ("Project"), please accept the following comments on the December 2011 draft environmental impact statement ("DEIS") to determine lands that will be administratively available for geothermal leasing on the forest. We appreciate the notification of this opportunity to comment.

The Center is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over 315,000 members and on-line activists throughout California, Nevada and the United States.

The Project is a catalyst for wildlife habitat conservation, wilderness preservation, and smart development of renewable energy.

We submit these comments on behalf of our members, activists, staff, and members of the general public who are interested in protecting native species and their habitats, quiet recreation activities, and wilderness experiences on national forests system lands on the Humboldt-Toiyabe National Forest, particularly those lands impacted by this project.

19-1

The Center has previously submitted scoping comments for this project in a letter to you dated May 25, 2011 and we incorporate those comments by this reference.

19-2

The development of renewable energy is a critical component of efforts to reduce carbon pollution and climate-warming gases, avoid the worst consequences of global warming, and to assist in meeting needed emission reductions. We strongly supports the development of renewable energy production. However, like any project, proposed geothermal power projects should be thoughtfully planned to minimize impacts to the environment. In particular, renewable energy projects should avoid impacts to sensitive species and habitat, and should be sited in proximity to the areas of electricity end-use in order to reduce the need for extensive new transmission corridors and the efficiency loss associated with extended energy transmission. Only by maintaining the highest environmental standards with regard to local impacts, and effects on species and habitat, can renewable energy production be truly sustainable.

19-3

The Center and Project strongly supports Alternative 2 (with modifications outlined below) of the DEIS. We believe that Alternative 1 is non-responsive to the unique stewardship responsibilities and land ethics faced by the Forest Service (“agency”) on the lands being considered for consent to lease, in particular the imperiled populations of Bi-State and greater imperiled sage grouse. Alternative 3, while being the least impactful, does not provide affirmative action to address the perils from greenhouse gas emissions and the catastrophic effects of resulting climate change.

While strongly supporting Alternative 2, we offer the following issues and concerns for your consideration in preparing a final EIS and record of decision.

Sage grouse

19-4

Both the Bi-state and greater populations of sage grouse were found to be warranted for listing under the ESA.¹ As part of the finding, the bi-state population was assigned a listing priority of “3”, which signifies the species faces a high magnitude of imminent threats. Threats disclosed in the finding included: energy development, mining, grazing, invasive species, off road vehicle use, habitat fragmentation, wildfire, urbanization and climate changes. Additionally, the current regulatory mechanisms were found inadequate to address the threats. Since the grouse occurs in low numbers and isolated populations, they are at increased risk from stochastic events such as disease epidemics, fire and other environmental catastrophes. The finding held that: “The combination of factors that pose threats and the limited potential to recover from population declines or extirpations results in a high risk of extirpation of populations of the greater sage-grouse in four of the six population management units over the next 30 years”.²

For this reason, we are particularly concerned with the impacts of a consent to lease on the Bi-state population. **We recommend that all Category 1 and 2³ habitat areas for the Bi-state population not be included in the consent for lease.**

19-5

For the lands providing habitat for the greater population of sage grouse, we appreciate the agency’s adoption of the, *Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage Grouse Populations and Their Habitats* (“Energy Standards”).⁴ Doing so is a large step in addressing our concerns.

19-6

In the DEIS, the agency states that for Alternative 2, “prohibit surface occupancy and surface-disturbing activities within field verified active sage grouse nesting and active early brood-rearing habitat, if it falls outside the 3 mile radius from a lek”.⁵ Our scoping comments called for eliminating areas categorized by the Nevada Department of Wildlife (“NDOW”) as Category 1 or 2 areas for sage grouse. It is the Center’s interpretation that these two provisions are the same,

¹ Federal Register, March 23, 2010. 50 C.F.R. Part 17, pages 13910-14014. The FWS claimed that due to resources constraints and other priorities it could not move forward with the listing process and therefore, although warranted, the listing was precluded at that time.

² Ibid

³ As defined in:

Nevada Governor’s Sage-Grouse Conservation Team. April 2010. Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage Grouse Populations and Their Habitats. 68 pages.

Available at: http://ndow.org/wild/conservation/sg/resources/nevada_energy_standards_for_sage-grouse_2010.pdf .

⁴ Ibid.

⁵ DEIS, page 2-10.

19-6

but if not, our call for excluding all Category 1 and 2 areas remains. Of particular concern are protections for crucial sage grouse winter range habitat which is included in the Energy Standards, but not mentioned in the DEIS.

19-7

Also, the Energy Standards call for, “No development should occur within a 0.6 mile (1 km) radius around seeps, springs and wet meadows within identified brood rearing habitats”. Appendix A envisions a 300-500 foot buffer to protect aquatic features and Lahontan cutthroat trout, but there is no connection made between springs and wet meadows and sage grouse needs, and the envision buffers are smaller than called for in the Energy Standards.

19-8

While the timing restrictions found in the Energy Standards is mentioned in the description of Alternative 2, it is not explicitly stated in DEIS Appendix A, but should be in future drafts.

19-9

Further, we are concerned that the agency’s stipulations in the consent to lease include the need for further inventory, including lek detection surveys, prior to the approval of further leasing steps.

19-10

We also request that the agency strengthen its stipulations found in Appendix A of the DEIS by including the most currently available science and best management practices found in the National Sage Grouse Technical Team’s December 2011 report.⁶

Special Areas

19-11

While we appreciate the recognition given to Inventoried Roadless Areas (“IRAs”) in Appendix A⁷, we are concerned that some special areas within IRAs are not adequately protected. Specifically we are concerned about the Wovoka, Excelsior, and Huntoon areas, which have previously been found to be of Wilderness quality and/or appear in citizen-proposed Wilderness initiatives. To preserve the decision space by the agency to recommend these areas to Congress for formal Wilderness designation, they should be excluded from the consent to lease area.

Springs and Other Aquatic Features

19-12

While the DEIS does disclose the potential impacts to surface and ground water resources in a generic manner, there is little analysis of specific impacts nor the presentation of stipulations to protect aquatic features.

For instance, the DEIS does disclose that the Darrough’s hot spring is .8 miles from the Tonopah decision area, but makes not analysis of impacts or how such impacts would be avoided, minimized or mitigated.⁸

⁶ National Sage Grouse Technical Team. December 21, 2011. A Report on National Greater Sage-Grouse Conservation Measures.

Available at:

http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/im_attachments/2012.Par.52415.File.dat/IM%202012-044%20Att%201.pdf.

⁷ DEIS, page A-7.

⁸ DEIS, page 4-97.

19-13

Appendix A does provide some stipulations to protect riparian and wetland habitat and specifically Lahontan cutthroat trout habitat, but they merely assume that a buffer zone will address any impacts without any basis provided for this conclusion.

19-14

Further, discussion of the impacts to ground water resources is almost completely lacking. Considering that the mechanics of geothermal development inherently involve physical features below ground, there is a high degree of certainty that ground water resources will be impacted to some degree. These ground water features are often directly associated with springs and streams, some of which that provide habitat to rare and imperiled species, or unique recreational opportunities.

The agency must ensure that adequate protective stipulations are developed and included in any final decision.

Land Features

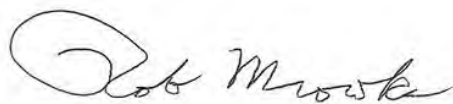
19-15

Appendix A has a stipulation that there would be no surface occupancy on lands with slopes greater than 40%. No justification is provided why this great of slope is acceptable and the Center requests it be carefully examined. Standards for logging often set the upper slope for ground-based equipment at 30%.

19-16

In closing, we hope that you will find these comments useful in your preparation of a final EIS and record of decision. We urge you to proceed ahead carefully and deliberatively. We wish to remain engaged in the process and request that we remain on any notification or mailing lists.

Sincerely yours in conservation,



Rob Mrowka
Ecologist/Conservation Advocate
Center for Biological Diversity



Jeneane Harter
Executive Director
Nevada Wilderness Project



United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Pacific Southwest Region
333 Bush Street, Suite 515
San Francisco, CA 94104

IN REPLY REFER TO:
(ER 11/1190)

Filed Electronically

13 February 2012

Mr. Keith Whaley
Humboldt-Toiyabe National Forest
1200 Franklin Way
Sparks, NV, 89431

Subject: USDA US Forest Service (USFS) Draft Environmental Impact Statement (DEIS) for Geothermal Leasing Availability on the Humboldt-Toiyabe National Forest (HTNF) Douglas, Lyon, Mineral, Lander, Nye and White Pine County, NV

Dear Mr. Whaley:

The Department of the Interior has received and reviewed the subject document and has the following comments to offer:

20-1 **General:** The document contains references to USGS documents that are incorrect. Several specific incorrect references are listed below; however, we suggest the authors conduct a review of the references cited to insure that the correct references are included in both the text and the list of references.

3.9 WATER RESOURCES (SURFACE AND GROUND)

20-2 **Pg. 3-28:** The document contains several statements that describe the regional groundwater system, and references USGS, 2002 as the source. The USGS, 2002 reference provided in the list of references (chapter 7) is a reference to a collection of statistical tools used by the USGS for water analysis. We suggest that the correct USGS, 2002 reference be provided.

20-3 **Pg. 3-34:** The document contains several statements that describe the surface water system, and references USGS, 2004f as the source. The list of references (chapter 7) does not include a USGS, 2004f reference, and the only USGS, 2004 reference listed does not appear to be the correct reference; the link provided does not access a web page. We suggest that the correct reference be provided.

If you have any questions concerning our comments, please contact Gary LeCain, USGS Coordinator for Environmental Document Reviews, at (303) 236-1475 or at gdlecairn@usgs.gov

Thank you for the opportunity to review this project.

Sincerely,

A handwritten signature in black ink, reading "Patricia Sanderson Port". The signature is fluid and cursive, with the first name "Patricia" being the most prominent.

Patricia Sanderson Port
Regional Environmental Officer

cc:
Director, OEPC
Gary Lecain, USGS ER Coordinator



SOUTHERN NEVADA WATER AUTHORITY

100 City Parkway, Suite 700 • Las Vegas, NV 89106
MAILING ADDRESS: P.O. Box 99956 • Las Vegas, NV 89193-9956
(702) 862-3400 • snwa.com

February 7, 2012

Keith Whaley
Humboldt-Toiyabe National Forest
1200 Franklin Way
Sparks, Nevada 89431

RECEIVED
FEB 13 2012
MINERALS

Dear Mr. Whaley:

SUBJECT: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR
GEOTHEMAL LEASING ON THE HUMBOLDT-TOIYABE NATIONAL FOREST

The Southern Nevada Water Authority (SNWA) appreciates the opportunity to provide comments on the Draft Environmental Impact Statement (DEIS) for Geothermal Leasing on the Humboldt-Toiyabe National Forest. SNWA requires significant power resources to treat and deliver water to its retail purveyors, and in southern Nevada has been managing some of its own power supplies in a cooperative effort with the State of Nevada and the Colorado River Commission. Renewable energy development and procurement is very important to SNWA's energy strategy and aligns with the organization's corporate objective of promoting sustainability. SNWA is continually seeking sources of renewable energy to achieve its goal of emulating the State's Renewable Portfolio Standard by providing 25 percent of its energy portfolio from renewable resources by 2025.

21-1

SNWA recognizes the importance of making United States Forest Service lands available for geothermal leasing, while identifying reasonable and necessary conditions to protect surface resources. We support Alternative I: Proposed Action, as described in the DEIS and have the following comments and concerns on the document:

21-2

- Section 2.3 describes how the "NSO areas shown for sage grouse are approximate because NDOW requires that the lek data be represented on a map with a precision no greater than the Public Land Survey System township, range, and section in which they reside. Calculations for NSO acres are, therefore also, approximate and may be greater than the actual area identified." Note that according to the actual location of the two leks in the vicinity of the Ely Geothermal Decision Area, the calculation for NSO acres in the document is significantly greater than the actual area. In delineating a 3-mile radius from the actual locations of the two leks, the NSO area would encompass approximately 2,070 acres of the decision area, as opposed to the 3,300 acres described throughout the document.

21-3

- Page 3-23. There is no discussion on the Potential Fossil Yield Classification as presented in the Geothermal PEIS (2008). The potential for discovery is discussed on page 5-10, paragraph 3, but there is no definition that explains low and moderate potential.

21-4

- Page 3-23, Paragraph 6, Lines 1-2. It should be mentioned that there are no known fossiliferous formations in the Tertiary and Quaternary deposits that are within the Ely Geothermal Decision Area.

SNWA MEMBER AGENCIES

Big Bend Water District • Boulder City • Clark County Water Reclamation District • City of Henderson • City of Las Vegas • City of North Las Vegas • Las Vegas Valley Water District

- 21-5 • Page 3-35, Paragraph 9, Line 1. The Ely Geothermal Decision Area is located in the White River Valley Hydrologic Unit, not the White Hydrologic Unit as described in the text.
- 21-6 • Page 3-70, Paragraph 7, Line 1. This section describes life requirements, occurrence, and range distribution for species occurring within all four decision areas. However, it states that sage grouse leks in this area are located above 8,800 feet in elevation. This statement is presumably in reference to the Bridgeport Decision Area only and should be moved to the appropriate section.
- 21-7 • Page 3-93. This section should acknowledge that the Class 1 review for the Ely Geothermal Decision Area did not identify any cultural resources. Also, no cultural inventories have ever been conducted in the Ely Geothermal Decision Area. A reference to the Geothermal PEIS (2008), Appendix D, D-4, that stipulates that pedestrian surveys would only be conducted before specific permits are issued, would help clarify when a Class III inventory survey would be conducted.
- 21-8 • Page 5-10, Paragraph 5. A reference to the Best Management Practices (BMPs) in the Geothermal PEIS (2208), Appendix D, page D-5 should be included here, as that document has specific BMPs for paleontological resources.
- 21-9 • Appendix A, Page A-6, Paragraph 3, Line 1. Within the PEIS, there is no stipulated distance for "no surface occupancy;" however, the 200-foot buffer around a Traditional Cultural Property seems appropriate. To date, the tribes have identified no TCPs or sacred sites within the Ely Geothermal Decision Area.
- 21-10 • Appendix A, Page A-8, Section D. Neither of the two citations in this section is included in Section 7, References. The citation "(2010)" is incomplete and although seemingly in reference to the text immediately prior to the citation, "NDOW energy guidelines", there is no such NDOW reference in Section 7. The citation "(Section B.2)" is incomplete and it is unclear to which document or section of this document it refers. Presumably, both citations refer to the document "Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage-Grouse Populations and Their Habitats", authored by the Nevada Governor's Sage-Grouse Conservation Team, April 2010. If so, include this reference in Section 7 and correct the citations accordingly.

If you have any questions regarding these comments or need additional information, please contact Derek Babcock at (202) 862-7442 or derek.babcock@snwa.com.

Sincerely,



Zane L. Marshall
Director, Environmental Resources

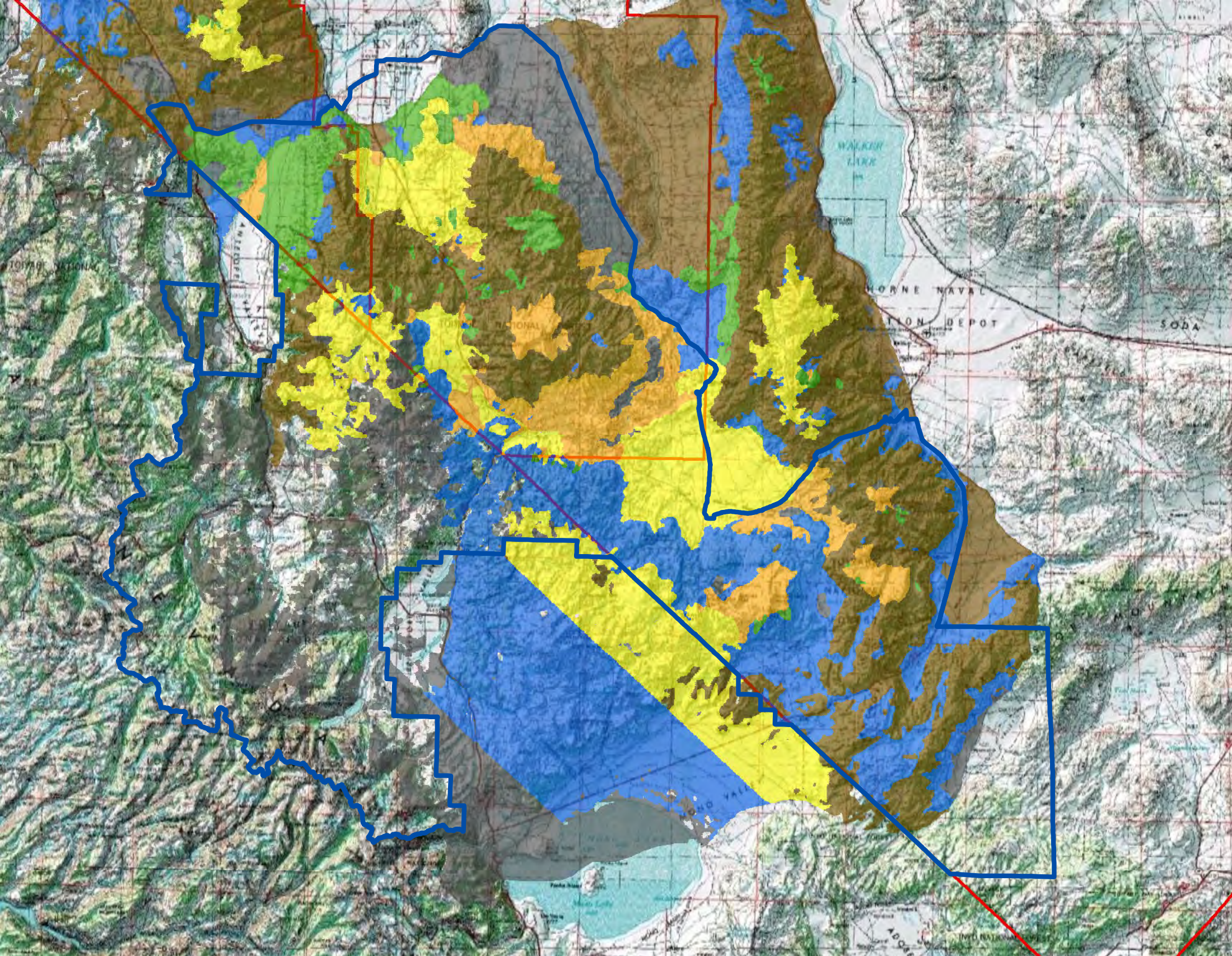
ZLM:LML:DB:df

c: Scott Krantz

Mark Freese
Supervisory Habitat Biologist

Literature

- Autenrieth, R. E. 1981. Sage grouse management in Idaho. Idaho Department of Fish and Game, Wildlife Bulletin 9, Boise, Idaho, USA .
- Giesen, K.M. 1995. Upland bird research: evaluation of livestock grazing and residual herbaceous cover on sage grouse nest success. Job final report, project number COW-167-R/Job 18/Wk.PI. 3 .. Colorado.
- Graham, L., and C. McConnell. 2004. Radio-collared greater Sage-grouse summary report: Southern Routt and Northern Eagle Counties, Colorado. Colorado Division of Wildlife, Steamboat Springs, Colorado, USA.
- Graham, L., and B. Jones. 2005. Northern Eagle/Southern Routt Greater Sage-Grouse Summary Report. Colorado Division of Wildlife, Steamboat Springs, Colorado, USA.
- Hagen, C. 2011. Greater sage-grouse conservation assessment and strategy for Oregon: a plan to maintain and enhance populations and habitats. Oregon Department of Fish and Wildlife, Portland, Oregon, USA.
- Holloran, M.J. 2005. Greater sage-grouse (*Centrocercus urophasianus*) population response to natural gas field development in western Wyoming. Dissertation, Department of Zoology and Physiology.
- Moynahan, B.J. and M.S. Lindberg. 2006. Nest locations of greater sage-grouse in relationship to leks in north-central Montana. Unpublished report.
- Petersen, B.E. 1980. Breeding and nesting ecology of female sage grouse in North Park Colorado. Thesis. Colorado State University, Fort Collins, USA.
- Tack, J.D. 2009. Sage-grouse and the human footprint: implications for conservation of small and declining populations. Thesis. University of Montana, Missoula, Montana, USA.
- Thompson, T.R., K.P. Reese, and A D. Apa. 2005. Dispersal ecology of greater sage-grouse in northwestern Colorado: Annual Report 2005. Colorado Division of Wildlife, Grand Junction, Colorado, USA.
- Thompson, T.R. 2006. Dispersal ecology of greater sage-grouse in northwestern Colorado: evidence from genetic and demographic data: 2006 Annual Progress Report. Colorado Division of Wildlife, Grand Junction, Colorado, USA.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

FEB 13 2012

Keith Whaley, Project Manager
Humboldt-Toiyabe National Forest
Bridgeport Ranger District
HC 62 Box 1000
Bridgeport, California 93517

Subject: Draft Environmental Impact Statement for Geothermal Leasing on the Humboldt-Toiyabe National Forest, to Facilitate the Development and Production of Geothermal Energy, Ely, Austin, Tonopah and Bridgeport Ranger Districts, Nevada (CEQ# 20110431)

Dear Mr. Whaley:

The U.S. Environmental Protection Agency has reviewed the Draft Environmental Impact Statement for Geothermal Leasing on the Humboldt-Toiyabe National Forest in Nevada. Our comments are provided pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508) and our NEPA review authority under Section 309 of the Clean Air Act.

EPA supports increasing the development of renewable energy resources in an expeditious and well planned manner. Using renewable energy resources such as geothermal energy can help the nation meet its energy requirements while minimizing the generation of greenhouse gases. While renewable energy facilities offer many environmental benefits, they are not without the potential for adverse impacts. Appropriate siting and design of such facilities is of paramount importance if the nation is to make optimum use of its renewable energy resources without unnecessarily depleting or degrading its water resources, wildlife habitats, recreational opportunities, and scenic vistas.

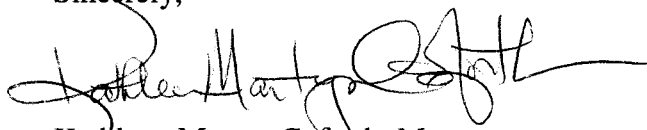
23-1

We have rated all alternatives in the DEIS as Environmental Concerns – Insufficient Information (EC-2) (see enclosed “*Summary of EPA Rating Definitions*”). The EPA recommends the Final EIS include additional analysis, and, as appropriate, mitigation measures for the potential impacts to water resources and air quality. Additionally, we recommend the FEIS include detailed procedures for further NEPA analysis of subsequent site specific projects, including analysis of, and mitigation for, climate change impacts. Our enclosed detailed comments provide additional information regarding these concerns and recommendations.

23-2

We appreciate the opportunity to review this DEIS and are available to discuss our comments. Please send one hard copy and one CD ROM copy of the FEIS to this office at the same time it is officially filed with our Washington D.C. Office. If you have any questions, please contact me at (415) 972-3521, or contact Scott Sysum, the lead reviewer for this project, at (415) 972-3742 or sysum.scott@epa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kathleen Martyn Goforth', with a long horizontal flourish extending to the right.

Kathleen Martyn Goforth, Manager
Environmental Review Office
Communities and Ecosystems Division

Enclosures:

- (1) Summary of EPA Rating Definitions
- (2) EPA's Detailed Comments

cc: Mr. Chris McAlear, District Manager
Bureau of Land Management, Carson City Field Office

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement.

ENVIRONMENTAL IMPACT OF THE ACTION

“LO” (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

“EC” (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

“EO” (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

“EU” (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. The EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality.

ADEQUACY OF THE IMPACT STATEMENT

Category “1” (Adequate)

The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category “2” (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category “3” (Inadequate)

The EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

US EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR GEOTHERMAL LEASING ON THE HUMBOLDT-TOIYABE NATIONAL FOREST, TO FACILITATE THE DEVELOPMENT AND PRODUCTION OF GEOTHERMAL ENERGY, ELY, AUSTIN, TONOPAH AND BRIDGEPORT RANGER DISTRICTS, NEVADA, FEBRUARY 13, 2012

Water Supplies

Public drinking water supplies and/or their source areas exist in many watersheds. Source water is water from streams, rivers, lakes, springs, and aquifers that is used as a supply of drinking water. Source water areas are delineated and mapped by the State for each federally-regulated public water system. The 1996 amendments to the Safe Drinking Water Act require federal agencies to protect sources of drinking water for communities. The Draft Environmental Impact Statement states that potential impacts from geothermal resource development to either surface water or groundwater would be reduced through site specific analysis and development of mitigation or protection measures for future projects as well as implementation of Best Management Practices. In addition, implementation of the stipulations outlined in Appendix A would reduce impacts on water resources (p. 4 -32). The DEIS does not discuss whether or not any source waters are located within the leasing area. Without this information, EPA is unable to fully assess the potential environmental impacts of the project and the adequacy of any mitigation measures to protect such waters.

23-3

Recommendation:

The Final EIS should identify:

- Any source water protection areas within the leasing areas.
- All activities that could potentially affect source water areas.
- Potential contaminants that may result from the expected exploration and geothermal development that could impact source water protection areas.
- Measures that would be taken to protect the source water protection areas.

Tiering and "Programmatic Like" Analysis

The DEIS distinguishes the process set forth in the document as a separate process from the Bureau of Land Management and Forest Service Programmatic Environmental Impact Statement for Geothermal Leasing in the Western United States, 2008¹; however, it states that this EIS will tier to and incorporate by reference those elements of the 2008 Geothermal PEIS that are appropriate for such use (e.g., resource impact analysis, stipulations, leasing procedures, and BMPs). The intent of this DEIS is to determine if the lands are administratively open for leasing, describe the Reasonably Foreseeable Development Scenarios for the planning area, examine the existing environmental setting, and describe the potential direct, indirect, and cumulative impacts that issuing leases, and the anticipated future actions following leasing, would have on the human and natural environment (p. 1-17).

¹ Bureau of Land Management and Forest Service. 2008. Programmatic Environmental Impact Statement for Geothermal Leasing in the Western United States.

Chapter 4 of the DEIS analyzes the environmental consequences of impacts expected to result from future actions. The DEIS states that the scope of the analysis is commensurate with the detail of the alternatives and the availability of data, and is at a programmatic level as discussed in Section 1.8, Scope of Analysis (p. 4-1). Details regarding site specific projects are not included in the DEIS as no geothermal leases or specific projects have been proposed to date. At various sections in Chapter 4, it is stated that subsequent site specific proposals or projects would undergo National Environmental Policy Act review, though details are lacking.

The DEIS does not describe the process that would be used to determine the level of subsequent NEPA analysis, nor does it identify the mechanism, screening criteria, or thresholds that would be used to make these determinations.

Recommendations:

23-4 The FEIS should clarify in Section 1.8, Scope of Analysis, that all lease stipulations and Best Management Practices from the 2008 Geothermal PEIS still apply. Further, the FEIS should clarify that any subsequent site specific geothermal exploration or development projects would require further environmental analysis, which could be conducted through either an environmental assessment or an EIS that could tier to the subject FEIS and the 2008 Geothermal PEIS.

The FS and BLM should elaborate on the process that individual offices will use to determine whether an EA or EIS will be prepared for subsequent projects, and identify the mechanism, screening criteria, and/or thresholds that would be used to make these decisions. We recommend that consistent standards for determining the appropriate level of NEPA review for individual projects be identified and implemented to ensure that all impacts are consistently identified and disclosed to decision-makers.

Stipulations, Best Management Practices, and Procedures

The lease stipulations, BMPs, and procedures described in Section 2.2 would be applied, as appropriate, to any future leases in the decision area, and incorporated, as appropriate, into permits or Conditions of Approval. The stipulations, BMPs, and procedures include those developed as part of the 2008 Geothermal PEIS as well as through the assessment process of the subject DEIS (p. 2-2).

23-5 The California Renewable Energy Action Team, as part of its Desert Renewable Energy Conservation Plan development process has also developed BMPs for low impact renewable energy development on desert lands, as well as specific BMPs for geothermal projects². Additionally the International Energy Agency has produced a handbook on the best practices for geothermal drilling³.

² Renewable Energy Action Team (California Energy Commission, California Department of Fish and Game, U.S. Department of Interior Bureau of Land Management and Fish and Wildlife Service). Best Management Practices and Guidance Manual: Desert Renewable Energy Projects. California Energy Commission, Siting, Transmission and Environmental Protection Division. REAT-1000-2010-009F.

³ Sandia National Laboratories for the IEA, Handbook of Best Practices for Geothermal Drilling, SAND2010-6048

Recommendation:

23-5

The FEIS should include the Renewable Energy Action Team Desert Renewable Energy Projects BMPs and the International Energy Agency Handbook of Best Practices for Geothermal Drilling as sources of BMPs that could be incorporated, as appropriate, into new leases, associated permits and Conditions of Approval.

Biological Resources, Habitat and Wildlife

Many of the proposed activities that would follow from the leasing decision would result in vegetation being cleared and soils moved during the construction of roads, well pads, pipelines, transmission lines, substations, power plants and other facilities. Such activities could adversely affect raptors or their habitats, which are known to occur in the vicinity of the decision area (p. 3-51).

23-6

All raptor and owl species are protected under the Migratory Bird Treaty Act. The golden eagle and bald eagle also receive protection under the Bald and Golden Eagle Protection Act. In September 2009, the U.S. Fish and Wildlife Service finalized permit regulations under the BGEPA for the take of bald and golden eagles on a limited basis, provided that the take is compatible with preservation of the eagle and cannot be practicably avoided. The final rule states that if advanced conservation practices can be developed to significantly reduce take, the operator of a facility may qualify for a programmatic take permit. Most permits under the new regulations would authorize *disturbance*, rather than take. Projects or activities that could impact golden or bald eagles may require the preparation of an Eagle Conservation Plan.

The BLM has recently issued Greater Sage-Grouse Conservation Guidance in the form of two Instructional Memoranda (IM No. 2012-043 and IM No. 2012-044) that are designed to guide both immediate and longer-term conservation actions aimed at conserving the greater sage-grouse and its sagebrush habitat in 10 western states, including Nevada.

Recommendations:

Work with the U.S. Fish and Wildlife Service to ensure that requirements regarding the protection of eagles and other raptors are appropriately addressed in the FEIS.

Consider incorporating appropriate actions and management strategies included in the BLM's Greater Sage Grouse IMs into the FEIS as measures to be applied to all site specific projects resulting from the leasing decision.

Climate Change

23-7

Emissions of carbon dioxide and other heat-trapping gases are affecting weather patterns, sea level, ocean acidification, chemical reaction rates, and precipitation rates, resulting in climate change. One report predicts that, by 2100, the average temperatures for Nevada are expected to increase by 3-4° F in the spring and fall and by 5-6° F in the summer and winter⁴. In general, Nevada is expected to have

⁴ United States Environmental Protection Agency. 1998. Climate Change and Nevada. Climate and Policy Assessment

23-7

wetter winters and more arid summers as the subtropical dry zones for the whole planet are projected to increase. Higher temperatures and increased winter rainfall will be accompanied by a reduction in snow pack, earlier snowmelts, and increased runoff.⁵ The DEIS includes a good discussion of the projected impacts of climate change on the area being considered for leasing (p. 3-110). Some of the predictions, such as reduced groundwater discharge, and more frequent and severe drought conditions, may impact subsequent site specific projects.

Recommendations:

The FEIS should discuss the potential impact of climate change on the effectiveness of proposed BMPs, lease stipulations and mitigation measures.

The NEPA analysis for each subsequent site specific project should discuss the potential impact of climate change on that project, and incorporate mitigation measures, as appropriate. The NEPA analyses for subsequent site specific projects should also assess how the projected impacts of each individual project could be exacerbated by climate change.

National Ambient Air Quality Standards and Particulate Matter

The DEIS describes the ambient air quality but does not estimate air emissions from the anticipated operations or facilities. The DEIS states that the nature and extent of geothermal-related development activities that would affect air quality would vary by project, depending on several factors: 1) whether the project is for direct use or indirect use; 2) the size of the project; and 3) for indirect projects, which type of power plant technology is used. Potential air quality impacts would be evaluated on a project-specific basis, as NEPA would be conducted for each of the potential phases of geothermal development activity: exploration, drilling operations, utilization, and reclamation and abandonment. Air permits would also be obtained, as necessary, for each individual phase, and activities at all sites would need to be carried out in conformance with the applicable state implementation plans (p. 4-35).

23-8

The leasing stage presents an ideal opportunity to disclose and analyze the potential impacts from past and future resource development in the project area and nearby vicinity. We note the DEIS includes a reasonably foreseeable development scenario which estimated a range of future production and exploration wells (p. 2-14). Despite the inclusion of this RFD, an emissions inventory was not prepared. While the area proposed for development is currently in attainment for all NAAQS, an emissions inventory at this stage will help inform the expected geothermal project-level analyses as well as a cumulative impacts analysis for projects in the area.

Recommendations:

Quantify, for each alternative in the FEIS, emissions of criteria pollutants and volatile organic compounds based on the number of reasonably foreseeable production and exploration wells.

Division (2174), USEPA.

⁵ The Center for Integrative Environmental Research (CIER) at the University of Maryland. 2008. Economic Impacts of Climate Change on Nevada.

Discuss, for each alternative, impacts to air quality related values for each Class I area, and sensitive Class II areas, as well as non-attainment areas in proximity to the project area.

The EPA recommends the FEIS include the following measures, as requirements for future projects, to reduce emissions of criteria air pollutants and hazardous air pollutants (air toxics).

- *Construction Emissions Mitigation Plan* – The FEIS should include a firm commitment to a Construction Emissions Mitigation Plan for any future projects in the decision area. In addition to all applicable local, state, or federal requirements, the EPA recommends that the following mitigation measures be included in the Construction Emissions Mitigation Plan in order to reduce impacts associated with emissions of particulate matter and other toxics from construction-related activities:
 - Stabilize heavily used unpaved construction roads with a non-toxic soil stabilizer or soil weighting agent that will not result in loss of vegetation, or increase other environmental impacts.
 - During grading, use water, as necessary, on disturbed areas in construction sites to control visible plumes.
 - Vehicle Speed
 - ◆ Limit speeds to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions.
 - ◆ Limit speeds to 10 miles per hour or less on unpaved areas within construction sites on unstabilized (and unpaved) roads.
 - ◆ Post visible speed limit signs at construction site entrances.
 - Inspect and wash construction equipment vehicle tires, as necessary, so they are free of dirt before entering paved roadways, if applicable.
 - Provide gravel ramps of at least 20 feet in length at tire washing/cleaning stations, and ensure construction vehicles exit construction sites through treated entrance roadways, unless an alternative route has been approved by appropriate lead agencies, if applicable.
 - Use sandbags or equivalent effective measures to prevent run-off to roadways in construction areas adjacent to paved roadways. Ensure consistency with the project's Storm Water Pollution Prevention Plan, if such a plan is required for the project
 - Sweep the first 500 feet of paved roads exiting construction sites, other unpaved roads en route from the construction site, or construction staging areas whenever dirt or runoff from construction activity is visible on paved roads, or at least twice daily (less during periods of precipitation).
 - Stabilize disturbed soils (after active construction activities are completed) with a non-toxic soil stabilizer, soil weighting agent, or other approved soil stabilizing method.
- *Fugitive Dust Source Controls*: Identify the need for a Fugitive Dust Control Plan. We recommend that the plan include these general commitments:

- Cover or treat soil storage piles with appropriate dust suppressant compounds and disturbed areas that remain inactive for longer than 10 days. Provide vehicles (used to transport solid bulk material on public roadways and that have potential to cause visible emissions) with covers. Alternatively, sufficiently wet and load materials onto the trucks in a manner to provide at least one foot of freeboard.
 - Use wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) where soils are disturbed in construction, access and maintenance routes, and materials stock pile areas. Keep related windbreaks in place until the soil is stabilized or permanently covered with vegetation.
- *Administrative controls:*
- Develop a construction traffic and parking management plan that maintains traffic flow and plan construction to minimize vehicle trips.
 - Identify any sensitive receptors in the project area, such as children, elderly, and the infirm, and specify the means by which impacts to these populations will be minimized (e.g. locate construction equipment and staging zones away from sensitive receptors and building air intakes).
 - Include provisions for monitoring fugitive dust in the fugitive dust control plan and initiate increased mitigation measures to abate any visible dust plumes.

Emergency Planning and Community Right to Know Act, CAA §112(r), and Nevada Chemical Accident Prevention Program

The 2008 Geothermal PEIS provides a list of hazardous materials routinely found at geothermal plants. In particular, binary plants typically use a flammable organic compound as the working fluid for the power plants. Hydrogen sulfide is a potential toxic gaseous pollutant that could be released during drilling, maintenance or as the result of an accident. The geothermal power plants will have to comply with CAA §112(r), and, as applicable, EPCRA § 303, 311, & 312, and the Nevada Chemical Accident Prevention Program. Additionally, since the establishment of the Emergency Planning and Community Right-to-Know Act in 1986, the county's Local Emergency Planning Committee can require a facility to produce an emergency response plan whether or not it is required under other regulations. Nevada's LEPCs are currently set up at the county level.

Recommendation:

The FEIS should discuss compliance with CAA §112(r), EPCRA §§ 303, 311, & 312 and the Nevada Chemical Accident Prevention Program, as applicable.

FEB 16 2012



United States Department of the Interior



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MINERALS

February 13, 2012
File No. 2012-CPA-0057

Keith Whaley
Project Coordinator
Bridgeport Ranger District
Humboldt-Toiyabe National Forest
HC 62 Box 1000
Bridgeport, California 93517

Subject: Comments on Draft Environmental Impact Statement for Geothermal Leasing on the Humboldt-Toiyabe National Forest

The U.S. Fish and Wildlife Service (Service) appreciates the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for Geothermal Leasing on the Humboldt-Toiyabe National Forest. The proposed action includes consent to lease of approximately 615,000 acres across four Ranger Districts. The majority of this acreage occurs on lands managed by the Bridgeport Ranger District, but additional parcels occur on lands managed by the Austin, Ely, and Tonopah Ranger Districts.

We have reviewed the DEIS and are providing the following comments pursuant to the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. 1531 *et seq.*). Other fish and wildlife resources are considered under the Fish and Wildlife Coordination Act, as amended (48 Stat. 401; 16 U.S.C. 661 *et seq.*) and the Fish and Wildlife Act of 1956, as amended (70 Stat. 1119; 16 U.S.C. 742a-742j). Our comments are based on the information provided in the DEIS and our current knowledge of the fish and wildlife resources within and near the proposed project areas.

The Service recognizes the need to develop alternative, renewable energy sources and is in strong support of these no carbon-based resources. We also recognize the importance of geothermal energy sources in the integrated energy mix needed by the United States market.

**TAKE PRIDE
IN AMERICA** 

24-1

We review and comment on numerous proposed renewable energy projects annually, including geothermal development projects. We typically have minor recommendations on proposed geothermal facilities. Appropriate siting of these facilities is the most important factor in minimizing biological conflicts. The proposed action in the Bridgeport, Austin, and Ely Decision Areas will likely pose challenges to greater sage-grouse (*Centrocercus urophasianus*) conservation. Our assessment of the Austin Decision Area was in the context of the recently approved McGinness Hills Geothermal Project adjacent to these proposed parcels.

24-2

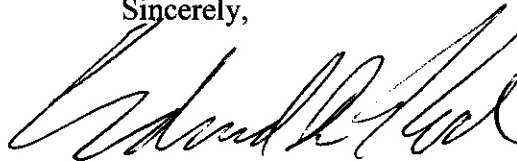
In March 2010 the Service determined in a 12-month status review (75 FR 13910) that the greater sage-grouse and the Bi-State Distinct Population Segment (DPS) of the greater sage-grouse (previously referred to as the Mono Basin area population) warrant the protection of the ESA but that listing the species and the Bi-State DPS at the time was precluded by the need to address higher priority species first. The greater sage-grouse and the Bi-State DPS of the greater sage-grouse have been placed on the candidate list for future action, meaning the species and the DPS do not receive statutory protection under the ESA, and States continue to be responsible for managing the species. In the status review, fragmentation of contiguous sagebrush habitats and of sage-grouse populations combined with inadequate existing regulatory mechanisms to prevent this fragmentation was the principle rationale for our listing decision. As regional collections of populations (*i.e.*, metapopulations) become further isolated from one another due to natural and anthropogenic impacts, the extent or distribution of these regional metapopulations will play a significant role in their persistence and ultimately our ability to recover this species should that become necessary. Because candidate species often have a period of time during which a listing action can be averted, we encourage a proactive and conservation-minded approach to activities that may have a detrimental impact on the species.

24-3

The proposed project boundaries associated with the Bridgeport, Austin, and to a lesser degree, Ely Decision Areas each occur in relatively high population density sites for the greater sage-grouse or the Bi-State DPS of the greater sage-grouse and the proposed action may have a detrimental effect on their long-term sustainability in these areas. We recognize the DEIS does not represent an irretrievable commitment of resources but consider the uncertainty it presents to future development scenarios a consideration pertinent to our upcoming listing decisions. Assuming sites are developed, we anticipate that potential impacts will occur from direct habitat loss, habitat fragmentation through roads and power lines, noise, and increased human presence, shifts in the predator community [increasing abundance of common ravens (*Corvus corax*)], and the spread of invasive species. Given our knowledge of the greater sage-grouse in these areas, we expect that there will be reductions and possibly a complete loss in local population numbers due to the commensurate habitat degradation resulting from construction and operation of geothermal facilities. This loss or reduction in the populations will likely not be immediately obvious due to site fidelity of adult birds. Indirect impacts will further expand the actual impact area beyond the facilities. We recommend that until such time general agreement among stakeholders in Nevada can be reached as to the location and extent of essential and irretrievable greater sage-grouse habitat, deference toward conservation of these habitats be afforded for the long-term benefit of this species.

Coordination among Federal agencies on renewable energy developments represents a promising path forward with respect to meeting each of our unique but frequently overlapping missions. In Nevada, we look forward to continuing and improving upon this effort to both positively affect species conservation and to develop a robust renewable energy supply that is not reliant on carbon-based fuels. If you have any questions regarding this correspondence or require additional information, please contact me or Steve Abele at (775) 861-6300.

Sincerely,

A handwritten signature in black ink, appearing to read "Edward D. Koch", written in a cursive style.

Edward D. Koch
State Supervisor



Toiyabe Chapter P.O. Box 8096 Reno, NV 89507

February 13, 2012

Keith Whaley, Project Manager
Humboldt-Toiyabe National Forest
Bridgeport Ranger District
HC 62 Box 1000
Bridgeport, CA 93517

Submitted via email to: comments-intermt-n-humboldt-toiyabe@fs.fed.us

Re: Geothermal Leasing on the Humboldt-Toiyabe National Forest DEIS

Dear Mr. Whaley,

Please accept these comments submitted on behalf of the over 5,400 members of the Toiyabe Chapter of the Sierra Club in Nevada and the eastern Sierra regarding the Draft Environmental Impact Statement (DEIS) for Geothermal Leasing on the Humboldt-Toiyabe National Forest.

The Sierra Club is a national nonprofit organization of approximately 1.3 million members and supporters dedicated to exploring, enjoying, and protecting the wild places of the earth; to practicing and promoting the responsible use of the earth's ecosystems and resources; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives. The Sierra Club's concerns encompass protecting our public lands, wildlife, air and water while at the same time rapidly increasing our use of renewable energy to reduce global warming. The development of renewable energy is a critical component of efforts to reduce carbon pollution and climate-warming gases, avoid the worst consequences of global warming, and to assist in meeting needed emission reductions. We strongly support the development of renewable energy production. However, like any project, proposed renewable energy projects should be thoughtfully planned to minimize impacts to the environment. In particular, renewable energy projects should avoid impacts to sensitive species and habitat. Only by maintaining the highest environmental standards with regard to local impacts, and effects on species and habitat, can renewable energy production be truly sustainable.

- 25-1 Many of our members who live near or recreate on National Forest lands in the Bridgeport, Austin, Tonopah, and Ely areas are concerned about the potential direct, indirect, and cumulative
- 25-2 impacts of the geothermal projects analyzed in the DEIS, particularly impacts on the Bi-State population of Greater Sage Grouse which occupy forest lands in the Bridgeport District, on
- 25-3 roadless areas, on springs and on water-dependent species.

Sage Grouse.

Sierra Club volunteers have a long history of concern with protection of Sage Grouse in Nevada and the Great Basin. As members of the Nevada Governor's Sage Grouse Conservation Team and local working groups since 2001, we worked with staff from the BLM and the USFS, the Nevada Department of Wildlife and private stakeholders to develop local PMU (Population Management Unit) plans which were incorporated into the 2004 state conservation plan, cited in the DEIS. Subsequently, we have supported implementation of the conservation plan.

While the Sierra Club supports development of environmentally responsible alternative energy development, including geothermal energy, we also are deeply committed to the conservation, protection and restoration of Sage Grouse populations, distributions, and habitat, especially high priority core habitat. This is particularly important for the Bi-State population, which only lives on National Forest, BLM and private lands in eastern California and western Nevada. This subpopulation is on a faster track for listing under the Endangered Species Act by the US Fish & Wildlife Service, after its decision in April 2011 that Sage Grouse are warranted for listing, but precluded due to higher priorities. This decision was challenged and subsequently settled by accelerating a listing decision.

In recognition of the urgency of taking immediate proactive steps to protect remaining populations and habitat, the USFS and the BLM initiated the National Greater Sage-Grouse Planning Strategy on December 9, 2011. The agencies are preparing EISs and Supplemental EISs to identify and incorporate explicit objectives and appropriate sage-grouse conservation measures into Land Use Plans (LUPs).

Unfortunately, we do not find this level of national concern reflected in this DEIS as the Bi-State Sage Grouse population or its dependence on National Forest lands in the Bridgeport District is not mentioned in the document. While some existing information on Sage Grouse is included in the DEIS, we did not find references to or incorporation of the Bi-State PMU plan specifically developed for the subpopulation, including in the Bridgeport Ranger District or conservation measures included in the national Sage Grouse initiatives.

Alternative 2, the Proposed Action (in which the USFS would consent to the leasing of over 600,000 acres of National Forest lands in the Bridgeport District) with Enhanced Stipulation for Sage Grouse, contains a few stipulations for greater protection of the Bi-State population and its core habitat in the Bridgeport District. While we certainly support what stipulations are mentioned in the DEIS and Appendix A, we find no documentation or support that these are adequate to actually protect the endemic subpopulation or meet national strategy goals and objectives. Nor do the DEIS stipulations include many of the specific protection measures included in BLM's Instruction Memorandum # 2012-044 and the National Sage-Grouse Technical Team Report on National Greater Sage-Grouse Conservation Measures, published on December 21, 2011 (National Technical Team Measures).

Instead, we found that the USFS rejected an alternative (p. 2-10) which would have provided for Non-consent Areas for Sage Grouse for limited protection. The rationale for rejecting this alternative - the impermanence of leks and breeding areas - only points out the critical importance of USFS actions to identify and conserve every existing lek, breeding area and wintering ground for the Bi-State population in the Bridgeport District, which may be lost due to

25-6 | wildfires, weed invasions and man-made habitat disturbances, including energy development and infrastructure.

25-7 | We strongly urge the USFS to not select the Proposed Action which allows the destruction of core Sage Grouse habitat areas. Instead, we urge the USFS to include the greater protections for Sage Grouse in Alternative 2 enhanced by the best available science. Specifically, the USFS should incorporate into Alternative 2 the protections included in the Bi-State PMU action plan update and the National Technical Team Measures as well as all other site-specific measures developed as more information becomes available on Bi-State Sage Grouse populations, distributions, movements, core habitat and threats.

Roadless Areas.

25-8 | There are eighteen inventoried roadless areas (IRAs) within the Bridgeport Decision Area totaling 409,152 acres. Three of these--Pine Grove South (88,753 acres), Excelsior Mountains (68,967 acres), and Huntoon (36,085 acres) -- received a very high rating for wilderness values in the Humboldt-Toiyabe 2008 inventory. Both the Pine Grove South (Wawoka) and the Excelsior Mountains have previously been recommended for wilderness designation by the Forest Service. Geothermal projects in these IRAs would have the effect of diminishing their wilderness value and could disqualify them for being considered in any future wilderness bill. We therefore request that these three IRAs not be considered for geothermal leasing.

Aquatic Features and Species.

25-9 | While the DEIS does disclose the potential impacts to surface and ground water resources in a generic manner, there is little analysis of specific impacts nor the presentation of stipulations to protect aquatic features. Additionally, there seems to be a lack of surveys of springs in the study area. Lastly, we find no information in the DEIS on most aquatic species, except Lahontan cutthroat trout, and on potential impacts of geothermal leasing and development on these species. These include endemic species, such as spring snails. Adequate information on water-dependent species should be obtained or required and protections of these species and their spring habitats should be specifically included in Alternative 2 and subsequent NEPA documents on geothermal leasing projects.

25-10 |

25-11 |

Thank you for considering our concerns and recommendations

Sincerely,

s/s

Rose Strickland

Chair, Public Lands Committee

Sierra Club Toiyabe Chapter

FEB 17 2012

Comments on the Humboldt-Toiyabe National Forest Draft Environmental Impact Statement (DEIS) for Geothermal Leasing on the Humboldt-Toiyabe Forest.

- 26-1 We, the undersigned, recommend that the Ely District Geothermal leasing study area be identified as lands closed to geothermal leasing, but that all other lands included in this EIS process go forward under the alternative number two.
- 26-2 We believe that this EIS process should have included the No Leasing or Development of Geothermal Resources on National Forest System Lands alternative. Not only does the NEPA process require this, but Alternative three(the no action alternative) does not preclude the possibility of geothermal leasing.

Some of our reasons for recommending that the Ely District Geothermal study area be closed to geothermal leasing are as follows:

- 26-3 1. Section 3.9 states that this study is only concerned with affects to public lands in the planning area. A major concern of ours is the effect geothermal leasing in the Ely District study area could have on adjacent private lands in White River Valley.
- 26-4 2. A general description of the Basin and Range aquifer system is presented in Section 3.9. However, it would seem that the authors of this EISD are not familiar with the BARCAS study(USGS 2007), as it applies to White Pine County, and White River Valley is particular. There are numerous contradictions between the two.(please note the literature we have included from the BARCAS study,)
- 26-5 3. The last sentence on page 3-28 states: the groundwater beneath the decision areas occurs in unconsolidated sand and gravel aquifers. The map on page 3-30 also shows this same scenario. Geothermal resource water does not occur in an unconsolidated sand and gravel aquifer (the alluvial fill). If there is available geothermal water in the study area, it would be from a carbonate or volcanic aquifer.
- 26-6 4. In addition to one hot spring very close to the study area, there are seven low temperature carbonate springs in the Preston and Lund area. Together, these springs flow over 25 CFS and irrigates over two thousand acres of prime farmland. This same carbonate flow system is probably contributing to the shallow alluvial aquifer that is pumped to irrigate several thousand acres of prime farmlands in the Preston and Lund area. Page 3-86 section 3.15.3 states: there is no prime farmland data available for farmland in the Ely Geothermal Decision Area. How Hard Did They Look? Did They Visit The Area?
- 26-7
- 26-8 5. In addition to the cumulative impacts as discussed under the heading "Hydrology and Water Quality" on page 5-17, we are concerned about the investigative and development stage. Drilling either source wells or injection wells into a common carbonate system with our springs could cause irreparable damage.

REC'D FEB 13 2012

at Ely RD KW

26-9 6. Page 4-52 states that a biological assessment is being prepared to analyze potential effects on federally listed and proposed species. Native to the carbonate springs is the listed "white River Spinedace" and three species of concern "Preston White River Springfish", "Speckled Dace" and "Desert Sucker".

Note: the last paragraph on page 4-50 should be under 4.12.6 rather than 4.12.7.

26-10 7. The map on page 3-103 shows most of the Ely Decision Area to be designated "Roadless". Considering the type of vehicles: drill rigs, flatbed trucks for hauling casing and drilling mud, cement trucks, etc, as well as earthmoving equipment to construct drill site pads, that would be accessing most of the area, it would be absurd to assume this area could retain a roadless designation if it were to be leased for geothermal production.

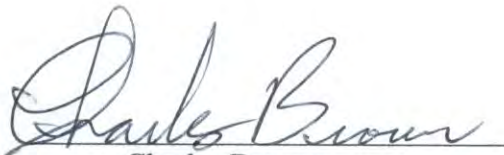
26-11 8. In addition to our grave concern about our carbonate springs, we have some concerns for additional carbonate springs farther south in the White River Valley, such as Immigrant Springs, Butterfield Spring, Flag Springs, Hot Creek Spring and Moon River Spring.



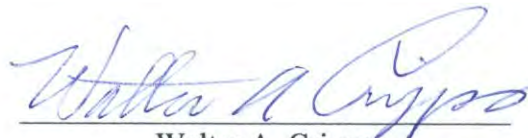
Roderick G. McKenzie
President Lund Irrigation and
Water Co.
P.O. Box 236
Lund, NV 89317



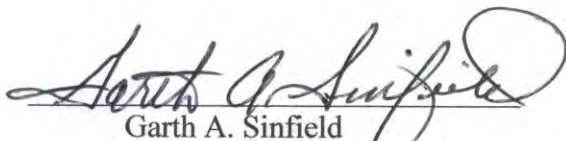
Steven Carter
President Preston Irrigation Co.
P.O. Box 27
Lund, NV 89317



Charles Brown
Owner White River Ranches
HC 34 Box 34165
Ely, NV 89301



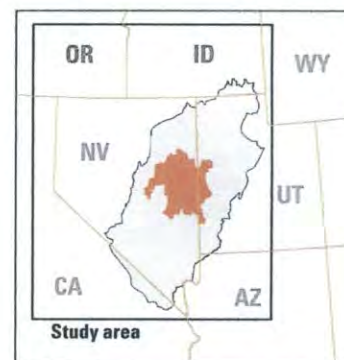
Walter A. Cripps
Owner McQuitty Spring
HCR 34 Box 34015
Ely, NV 89301



Garth A. Sinfield
Owner Tin Can Spring
HC 34 Box 34001
Ely, NV 89301

Water Resources of the Basin and Range Carbonate-Rock Aquifer System, White Pine County, Nevada, and Adjacent Areas in Nevada and Utah

By Alan H. Welch, Daniel J. Bright, and Lari A. Knochenmus, Editors



Summary of Major Findings

Introduction

This report summarizes results of a water-resources study for White Pine County, Nevada, and adjacent areas in east-central Nevada and western Utah. The Basin and Range carbonate-rock aquifer system (BARCAS) study was initiated in December 2004 through Federal legislation (Section 301(e) of the Lincoln County Conservation, Recreation, and Development Act of 2004; PL108-424) directing the Secretary of the Interior to complete a water-resources study through the U.S. Geological Survey, Desert Research Institute, and State of Utah. The study was designed as a regional water-resource assessment, with particular emphasis on summarizing the hydrogeologic framework and hydrologic processes that influence ground-water resources.

The study area includes 13 hydrographic areas that cover most of White Pine County; in this report however, results for the northern and central parts of Little Smoky Valley were combined and presented as one hydrographic area. Hydrographic areas are the basic geographic units used by the State of Nevada and Utah and local agencies for water-resource planning and management, and are commonly defined on the basis of surface-water drainage areas. Hydrographic areas were further divided into subbasins that are separated by areas where bedrock is at or near the land surface. Subbasins are the subdivisions used in this study for estimating recharge, discharge, and water budget. Hydrographic areas are the subdivision used for reporting summed and tabulated subbasin estimates.

Aquifer System

Most ground water in the study area flows through three types of aquifers—a shallow basin-fill aquifer, a deeper volcanic-rock aquifer, and an underlying carbonate-rock aquifer that forms the base of the ground-water flow system. Relatively impermeable basement rocks underlie the carbonate-rock aquifer throughout most of the study area. The basin-fill aquifer underlies every valley and is the primary source of ground water for the area. Typical thicknesses of basin fill range from 0.3 to 0.9 miles; maximum thicknesses of basin fill range from about 1 mile to more than 3 miles. The volcanic-rock aquifer is thickest beneath the western and southern parts of the study area, extending laterally beneath the basin-fill aquifer in multiple hydrographic areas. Although some springs issue from volcanic rocks, these aquifers are not utilized as a significant source of water supply in the study

area. Fractured, permeable carbonate rocks are regionally extensive, form many of the mountain ranges, and underlie the basin-fill and volcanic-rock aquifers throughout much of the study area. Ground water in the carbonate-rock aquifer discharges at perennial-flowing valley-floor springs and, because of the lateral continuity and relative high permeability of the carbonate rocks, most ground-water flow between adjacent valleys occurs through this aquifer. Although not a primary source of water supply in the study area, some ground water is pumped from the carbonate-rock aquifer for various uses.

The distribution of aquifers and units of low permeability along hydrographic area boundaries controls ground-water flow between hydrographic areas. Ground-water flow across some hydrographic area boundaries is negligible where carbonate or volcanic rocks are absent, or if the aggregate permeability of aquifers beneath a hydrographic area boundary is relatively low.

The study area encompasses 13 hydrographic areas (HAs)¹ (fig. 2). For most figures and tables in this report, water-budget components were estimated independently for the northern and central parts of Little Smoky Valley, and then were combined and reported as one value. Past studies have combined HAs to delineate intermediate or regional ground-water flow systems, primarily based on the direction of interbasin ground-water flow in the underlying carbonate-rock aquifer and the location of major recharge and terminal discharge areas (Harrill and Prudic, 1998). Although most boundaries between HAs coincide with topographic basin divides, some are arbitrary divisions that have no topographic basis. In this report, HAs also are referred to as basins, and ground-water flow within a basin is referred to as intrabasin ground-water flow. Moreover, HAs were further divided into subbasins that are separated by areas where pre-Cenozoic rocks are at or near the land surface. For purposes of this report, areas that separate subbasins are referred to as intrabasin divides. Subbasins are the subdivision used to estimate recharge and discharge in this study. HAs are the subdivision used to report summed and tabulated subbasin water budgets. HAs within this report refer to formal HAs of Harrill and others (1988) with two exceptions: (1) 'Little Smoky Valley' refers to both HAs 155A and 155B, which are the northern and central parts of Harrill and others' description of Little Smoky Valley, respectively, and (2) 'Butte Valley' refers only to HA 178B, which is the southern part of Harrill and others' description of Butte Valley.

Precipitation in the study area provides recharge to four regional ground-water flow systems—the Newark Valley, Goshute Valley, Great Salt Lake Desert, and Colorado regional flow systems (fig. 1)—that headwater in White Pine County. These regional flow systems are characterized by flow across HA boundaries and discharge as warm springs. All these regional flow systems extend to areas outside of White Pine

County. As perceived by Harrill and others (1988), the Newark Valley and Goshute Valley flow systems are relatively small, internally drained flow systems, whereas the Great Salt Lake Desert and Colorado flow systems terminate in areas hundreds of miles from their source area in White Pine County. The Great Salt Lake Desert regional flow system terminates at the Great Salt Lake, with intermediate discharge at Fish Springs in Juab County, Utah. The Colorado regional flow system terminates at Lake Mead and the Colorado River, with a principal intermediate discharge area at Muddy River Springs in Lincoln County, Nevada. In addition to these and other perennial valley-floor springs, numerous high-altitude ephemeral and perennial springs are found in the study area. Many of these perennial and ephemeral springs support native vegetation; and some springs support protected aquatic or wildlife species, such as the Pahrump poolfish (*Empetrichthys latos*) in southeastern Spring Valley, and the White River spinedace (*Lepidomeda albivallis*) in White River Valley near Lund.

Regional ground-water flow in the study area primarily is through the carbonate rocks. Much of the carbonate-rock aquifer is fractured and these fractured rocks, where continuous, form a regional flow system that receives recharge in high-altitude mountain ranges in the study area where these rocks are exposed. Some water flows from the carbonate-rock aquifer into basin-fill aquifers. This regional discharge sustains many of the larger, perennial low-altitude springs in the study area. The basin-fill aquifers that overlie the carbonate-rock aquifer typically are more than 1,000-ft-thick deposits of volcanic rocks, gravel, sand, silt and clay (Harrill and Prudic, 1998). Basin-fill deposits locally can exceed 10,000 ft in thickness. Gravel and sand deposits yield water readily to wells and form the aquifers most commonly developed for agricultural, domestic, and municipal water supply.

¹Formal hydrographic areas in Nevada were delineated systematically by the U.S. Geological Survey and Nevada Division of Water Resources in the late 1960s (Cardinali and others, 1968; Rush, 1968) for scientific and administrative purposes. The official hydrographic-area names, numbers, and geographic boundaries continue to be used in U.S. Geological Survey scientific reports and Division of Water Resources administrative activities.

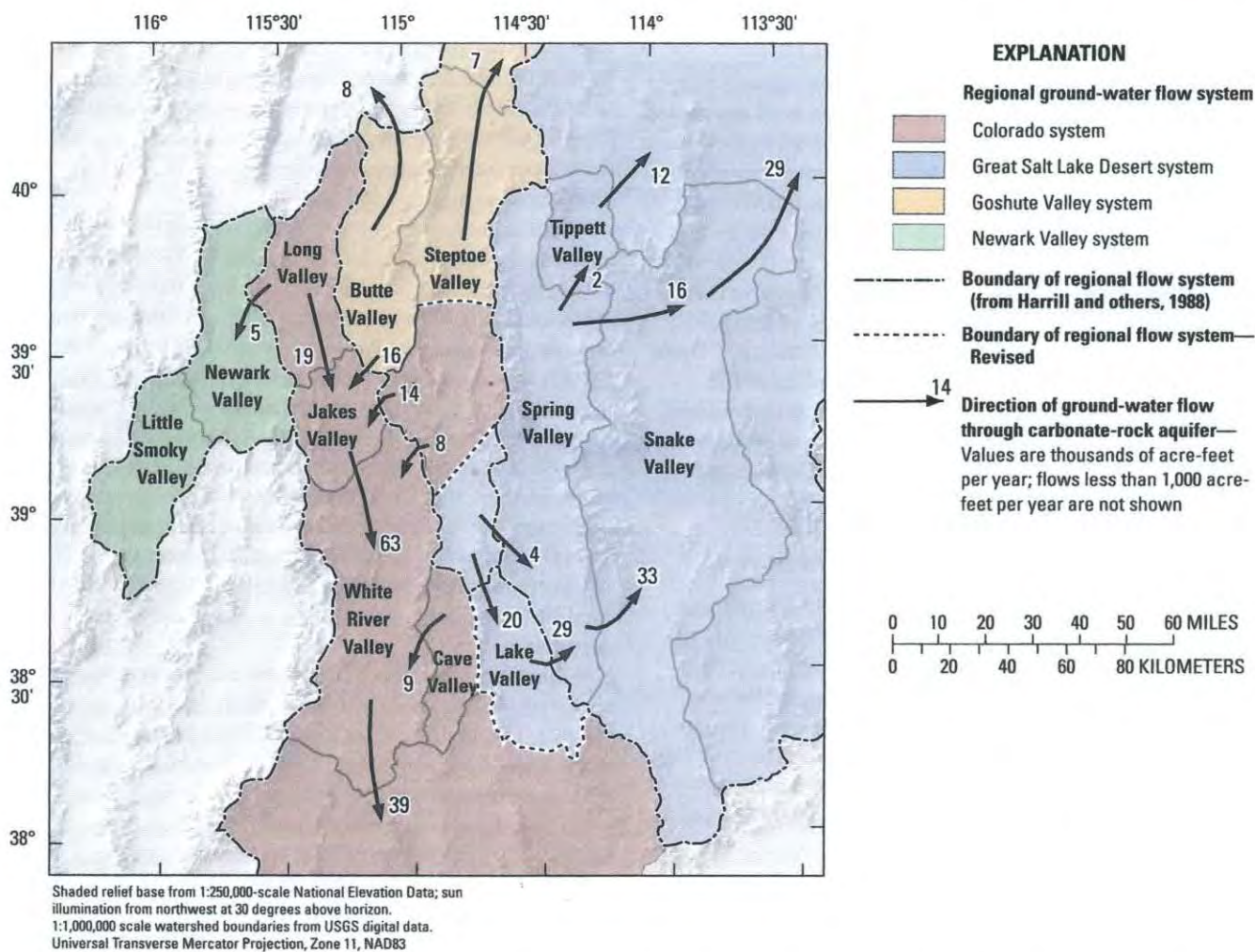


Figure 41. Regional ground-water flow through the Colorado, Great Salt Lake Desert, and other regional flow systems, Basin and Range carbonate-rock aquifer system study area, Nevada and Utah.

Ground-Water Conditions

By Lari A. Knochenmus¹, Randell J. Laczniaik¹, Michael T. Moreo¹, Donald S. Sweetkind¹, J.W. Wilson¹, James M. Thomas², Leigh Justet¹, Ronald L. Hershey², Sam Earman², Brad F. Lyles², and Kevin W. Lundmark²

¹U.S. Geological Survey

²Desert Research Institute

The ground-water flow system in the study area is influenced by a combination of topography, climate, and geology. Driven by the hydraulic gradient, ground water moves through permeable zones from areas of recharge to areas of discharge. The ground-water flow system includes flow paths of three distinct scales—local, intermediate, and regional (fig. 16). These terms are adapted from Toth (1963)

and Freeze and Cherry (1979), and were defined by the depth of ground-water circulation and length of the flow path. Local flow systems are characterized by relatively shallow and localized flow paths that terminate at upland springs. These springs are low volume, tend to have temperatures similar to annual average ambient atmospheric conditions and have discharge that fluctuates according to the local precipitation.

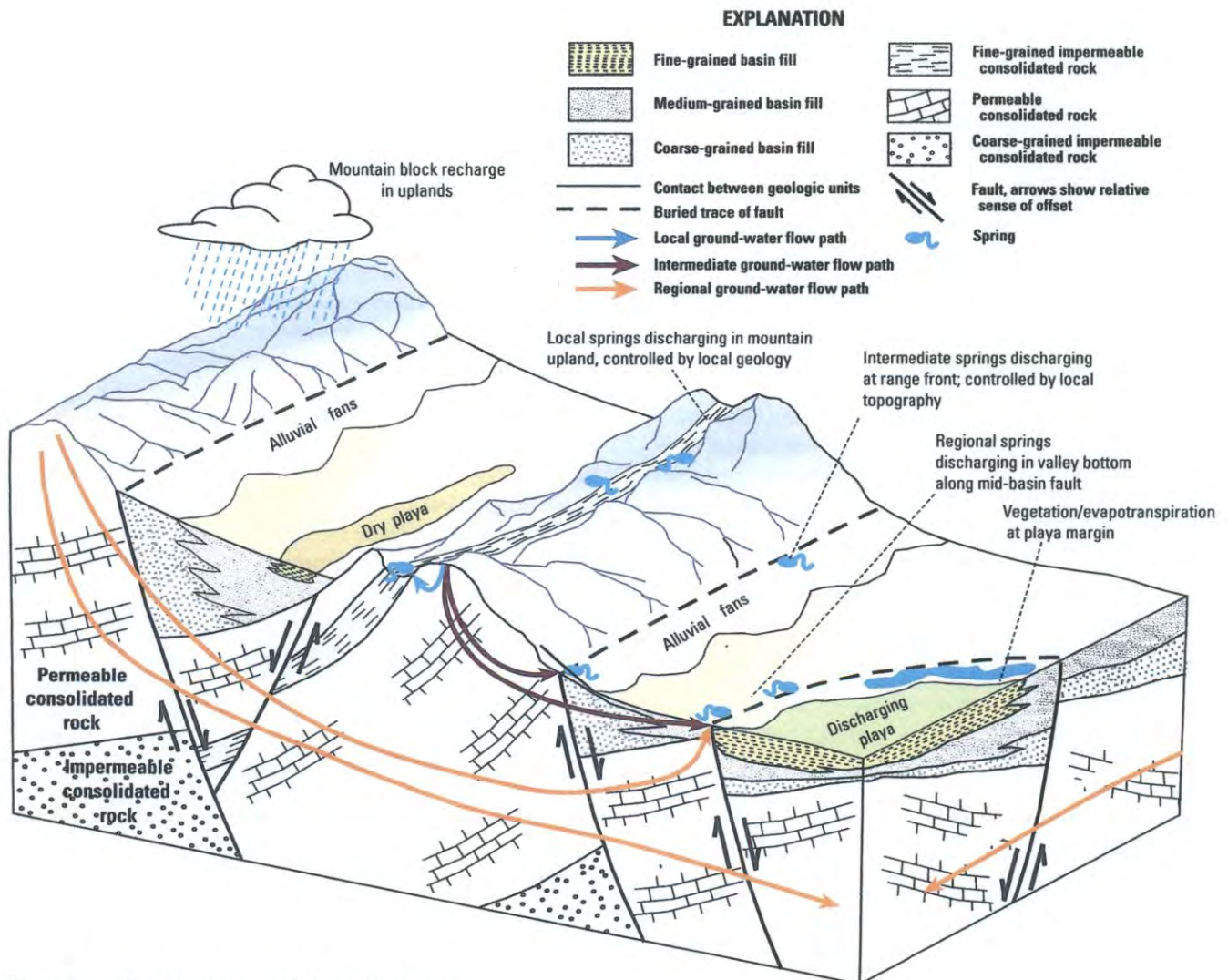


Figure 16. Conceptual ground-water flow systems.

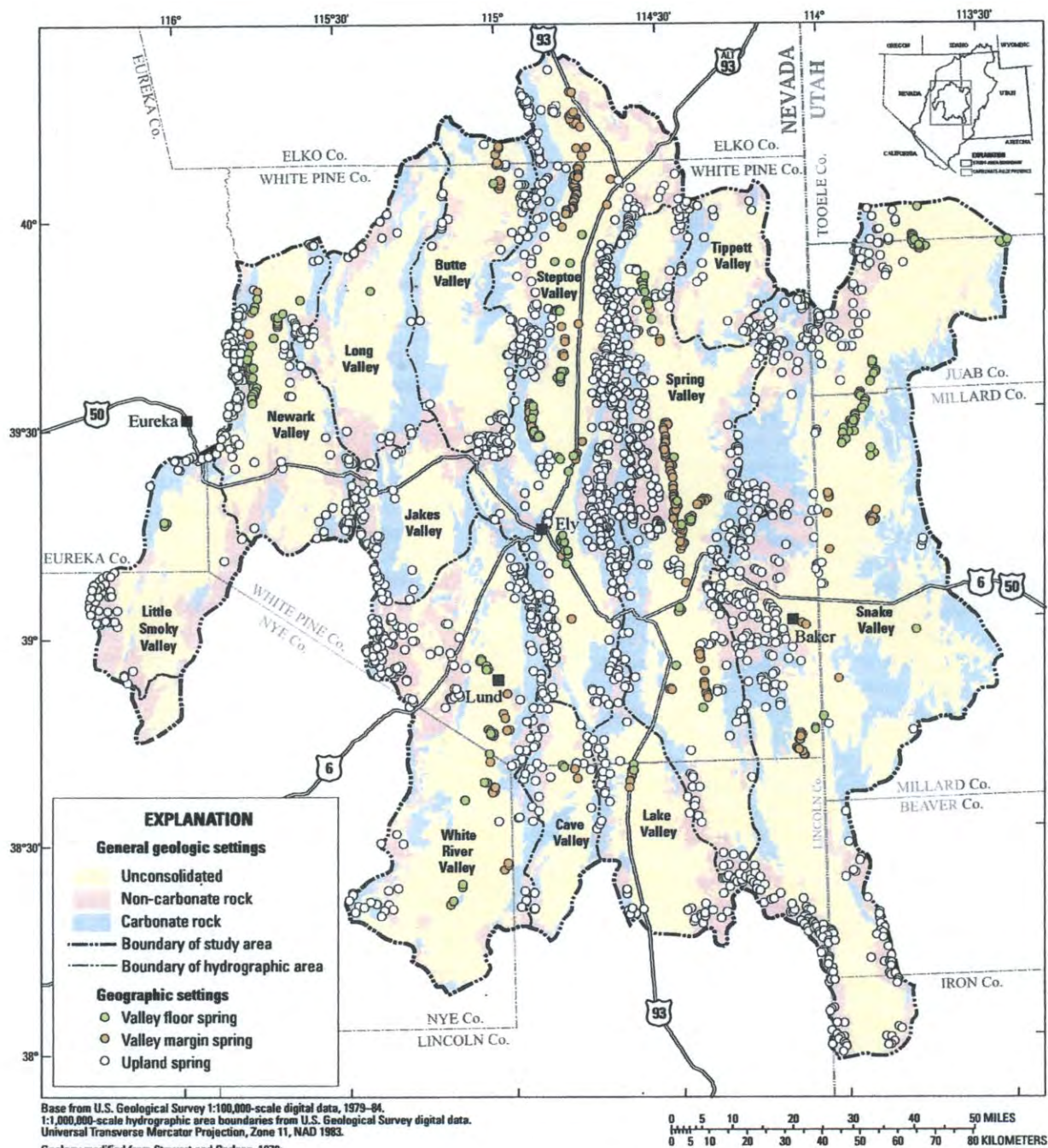


Figure 2. Hydrographic areas, springs by geographic setting, and simplified geology in the Basin and Range carbonate-rock aquifer system study area, Nevada and Utah.

From: msill@juno.com
Sent: Monday, February 13, 2012 10:29 AM
To: FS-comments-intermtn-humboldt-toiyabe
Cc: msill@juno.com
Subject: Geothermal Leasing Project DEIS

Keith: I have read most of the DEIS and wish to make the following comments as an individual:

27-1

I am extremely concerned about the acreage of inventoried roadless areas in the Bridgeport Ranger District that is proposed in this DEIS. There are three that I feel should not be considered for geothermal leasing because they were rated as high in wilderness quality in the 2008 Humboldt-Toiyabe inventory of roadless areas. These are Pine Grove South (88,753 acres), Excelsior Mts. (68,967 acres) and Huntoon (36,085 acres). Both Pine Grove South (Wawoka) and the Excelsior Mts. have previously been recommended by the Forest Service for wilderness. If any geothermal development were to take place in these areas, wilderness in the future could be ruled out as an option because of decrease in wilderness quality. Therefore, I request that these three inventoried roadless areas be eliminated for geothermal leasing in the final EIS.

27-2

I could find no mention of any aquatic species except Lahontan Cutthroat Trout although I am certain there are many species such as spring snails associated with the springs in the area which need to be protected. There needs to be some protection of these in the FEIS.

27-3

The three areas listed not in the Bridgeport Ranger District are so small and isolated that I doubt whether geothermal development and transmission of the power would be economically viable. I am not sure why these were included.

Thank you for your careful consideration of my comments. I am an advocate for geothermal development, but I want it to occur in places where it does not preclude other important values of our public lands.

Please send me a hard copy of the DEIS when it is issued.

Sincerely,

Marjorie Sill
720 Brookfield Drive
Reno, Nevada 89503
775-322-2867

**HUMBOLDT-TOIYABE NATIONAL FOREST
GEOTHERMAL LEASING PROJECT**

**LOCATION: NATIONAL FOREST SERVICE OFFICE
1200 FRANKLIN WAY, SPARKS, NV**



PUBLIC MEETING DATE: JANUARY 20, 2012

FEB 15 2012

COMMENT CARD

Please check your affiliation below:

<input type="checkbox"/>	Individual (no affiliation)
<input type="checkbox"/>	Private Organization
<input type="checkbox"/>	Federal, State, or Local Government
<input type="checkbox"/>	Citizen's Group
<input type="checkbox"/>	Elected Representative
<input type="checkbox"/>	Regulatory Agency

Name: Marge Sill
Organization (if applicable): Sierra Club
Street Address (optional): _____
City/State/Zip (optional): _____
Phone # (optional): _____

If you wish to provide written comments, please write your comments below (use back if needed). Thank you.

Comments: Wilderness Impacts
due to Leasing

recorded by Doug Clarke

Please submit tonight or mail/fax by February 13, 2012 to:
Keith Whaley, Humboldt-Toiyabe National Forest, HC 62, Box 1000,
Bridgeport, CA 93517-1000
Fax: 760-932-5899
E-mail: comments-intermtn-humboldt-toiyabe@fs.fed.us



Bridgeport Indian Colony
P.O. Box 37
Bridgeport, CA 93517
Phone: (760) 932-7083 Fax: 932-7846

February 13, 2012

Keith Whaley
Project Coordinator
Humbolt- Toiyabe National Forest

RECEIVED

FEB 15 2012

MINERALS

RE: Response to DEIS for Geothermal Leasing on the Humboldt- Toiyabe National Forest

29-1 First off we would like to thank the Forest Service in their effort to communicate with the Bridgeport Indian Colony on this issue and for presenting at the Tribal Council meeting. After reviewing the project details, it has been decided that the best way to protect areas of great concern to the Paiute people would be support Alternative number 2: Proposed Action with Enhanced Stipulations for Sage Grouse, and Traditional Cultural Properties and Sacred Sites.

29-2 We look forward to further consultation as projects arise under the exploration stage. There are still many concerns of an actual geothermal plant being constructed and the effects it will have on the surrounding land, water, animals and vegetation; much of which are used for food, medicine and spiritual purposes.

Thank you for your consideration in the matter,

John Glazier
Tribal Chairman

Comment Code	Comment	Response to Comment
1-1	<p>I am in full favor of this project. It is clean and will help out the economy and our country. Nevada should have more projects like this along with other types of projects to use our natural resources.</p> <p>Please allow this project to proceed.</p>	Comment noted.
2-1	No text in comment from individual.	No comment provided
3-1	At their regular meeting of January 3, 2012, the Board of Directors reviewed your material and the board cast a unanimous vote to support the leasing of any and all Forest Service lands for geothermal projects. We support the entire concept, but feel that we should only comment on the Austin and Tonopah District Ranger districts, as they have a direct effect on our community.	Comment noted.
3-2	By allowing these areas to be leased it has the potential to make a huge contribution to our economy. The revenue generated by the geothermal leases will have a major impact on both counties, generating more income.	Comment noted.
4-1	There is a significant risk of impact to sage grouse in allowing geothermal exploration and drilling in the subject properties.	Project is for leasing only. Impacts from exploration or development activities would be assessed during the NEPA process at the project level. However, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
4-2	Now is the Forest Service going to have hundreds of roads plowed through its lands for drilling rigs to run exploratory wells first, then production facilities, then add power transmission?	Project is for leasing only. Ground-disturbing activities will be analyzed upon receipt of a specific project proposal.
4-3	I understand the Fales region is particularly critical for the grouse and just from the hot springs at Fales, Buckeye and behind Bridgeport it would seem to be the first place for geothermal exploration and development. How is the Forest Service going to protect the grouse?	The Fales and Buckeye areas are in California and are not analyzed in this document. However, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
5-1	Page 1-10, 1.5.2, paragraph 1: Add "approved" to current plan of operation.	Text revised as suggested in 1.5.10 for the FEIS.

Comment Code	Comment	Response to Comment
5-2	Page 3-1, 3.22, paragraph 3: Much of the GRO information is now defunct has been superseded by new regulations, and BLM is moving away from using them. It has been brought up to WO that the GRO policy needs to be officially reviewed and modified. Therefore would recommend not using GROs in the document.	The commentor is correct in that the BLM does not have its own regulations, but the Geothermal Resource Orders (GROs) were established pursuant to the authority prescribed in 30 CFR 270.11 and in accordance with 30 CFR 270.2, 270.34(k), 270.37, 270.41, 270.42, 270.43, 270.44, and 270.76.
5-3	Page 4-5, 4.2.3. Consider adding noise (in populated areas) from geothermal power plants as an impact (e.g. Stillwater Power Plant).	There are no populated areas within or near the project areas and leasing would not result in noise impacts. The text has been revised to clarify potential noise impacts.
5-4	Page 4-95, 4.22.4. What "BLM regulations require that noise from geothermal activities be 65 dBA or less at the lease boundary?" It is in a GRO, but not a regulation (see comment 5-2).	The commentor is correct in that the BLM does not have its own regulations, but the Geothermal Resource Orders (GROs) were established pursuant to the authority prescribed in 30 CFR 270.11 and in accordance with 30 CFR 270.2, 270.34(k), 270.37, 270.41, 270.42, 270.43, 270.44, and 270.76. Text will be revised to state "BLM Geothermal Resources Order Number 4, General Environmental Protection Requirements, mandate that noise from geothermal activities be 65 dBA or less at the lease boundary."
5-5	Page A-3, second sentence. While it is generally true that DNAs are used during lease sales, it is not true that BLM office must prepare Documentation of Plan Conformance and NEPA Adequacy (DNA). Sometimes, the field office must prepare an EA. Suggest changing the text to say something like 'lease parcels require NEPA analysis, and that if NEPA has already been completed, then this is documented in a DNA.'	Text has been revised as suggested for the FEIS.
5-6	Page A-3, paragraph 2. Suggest changing 'a DNA can provide NEPA compliance' to 'a DNA can document NEPA compliance.'	Text has been revised as suggested for the FEIS.
5-7	(This Comment is based on the assumption that the Leasing EIS is amending the FS LUP. If the EIS is not, then an exception waiver and modification language is not necessary. However also note that new stipulations that are not within the analysis of the existing LUP cannot be	BLM and Forest Service regulations differ regarding LRMPs and amendments. In contrast to the BLM, the Forest Service does not require stipulations in LRMPs before they are attached to a lease. The criterion would be the science at the time taken into account by the Authorizing Officer

Comment Code	Comment	Response to Comment
	<p>developed.)</p> <p>Page A-4, Exception, Modification, or Waiver Process, paragraph 1: the document states 'if any of the exception, modification, or waiver criteria specific to the stipulation were met.' What is this criterion? If the criteria are not specified then how will you know if the exception, waiver, or modification is in conformance with the LUP amendment (Leasing EIS)? BLM WO IM 2008-32 states in regards to exceptions waivers and modifications that 'This determination should be fully documented in the case file with an appropriate level of environmental review (i.e. it can be done at the drilling stage with an EA, but not if the information conflicts with the LUP)and made on a case-by-case basis.' The IM also states 'It may be necessary to add, delete, or modify lease stipulations in the land use plan as a result of pre-lease issuance parcel reviews, statewide lease stipulation consistency reviews, plan amendments, changed circumstances on the ground, or changed resource protection priorities. This is accomplished and documented through either the plan maintenance or the plan amendment process...'</p>	<p>would decide if an exception or a modification of a waiver was warranted or not.</p>
5-8	<p>May also want to language to the document: that on National Forest Service system lands, the Forest Service is the authorized officer when granting a request for a waiver, exception or modification and that the Forest Service appeals procedures would apply.</p>	<p>Text has been revised as suggested for the FEIS and additional clarification added about BLM concurrence.</p>
6-1	<p>We would like to lend our support, which includes the Austin and Tonopah districts, as this would have a direct effect on the communities of Battle Mountain, Austin, and in Lander County and surrounding areas.</p>	<p>Comment noted.</p>
6-2	<p>Geothermal power plants in Central Nevada are being recognized as having the potential for a vital industry in Nye and Lander County. Allowing these areas to be leased will make a huge contribution to our economy.</p>	<p>Comment noted.</p>

Comment Code	Comment	Response to Comment
	The revenue generated by the geothermal leases will have a major impact on the rural counties.	
7-1	They have serious concerns that geothermal and drilling in the area may disrupt the flows at their springs and adversely affect their water rights. The Valley around Lund and Preston are heavily dependent upon agriculture.	Project Is for leasing only. Ground-disturbing activities will be analyzed upon receipt of a specific project proposal.
7-2	We discussed potential impacts on wildlife, roadless areas, archaeological sites, and potential risks to listed fish species in the geothermal springs in the valley.	Project Is for leasing only. Ground-disturbing activities will be analyzed upon receipt of a specific project proposal.
7-3	They indicated that they generally would support geothermal development, however, they felt that the potential risk in this area was just too great.	Comment noted.
7-4	They asked that the Forest Supervisor consider approving other parcels for leasing but choose not to approve leasing in this area due to potential risks.	This project only addresses the areas described. Other areas may be analyzed for leasing as interest demands. Potential risks are not specifically identified by the commenter.
7-5	They raised a number of questions about several mistakes in the document and they indicated that they would identify those mistakes in their comments.	Comment noted.
7-6	They did raise one discrepancy that needs to be addresses asap. The Legal Notice and cover letter describe a 45 day public comment period, however, on Page 6-3 of the DEIS the document makes multiple references to a 90 day comment period on the DEIS. This may need to be addressed asap.	This was corrected.
8-1	We are alarmed at the degree to which the Forest and BLM propose to sacrifice critical sage-grouse and other habitats to geothermal developers. Case in point: Grass Valley Ormat geothermal near Austin. Despite the great importance of these lands for wintering for a population of sage-grouse, as well as nesting and other habitats, BLM allowed large-scale geothermal development to proceed. Plus the Forest authorized a harmful new electrical line under a greatly inadequate EA.	Comment is in regards to past authorizations, which are outside the scope of the project. However, impacts on sage-grouse will be analyzed during the NEPA process in the EIS and again at the project level.
8-2	BLM repeatedly minimizes, segments, and piece meals NEPA to avoid taking a critical 'hard look' at all direct,	This phased approach for analysis is consistent with Forest Service policy and direction.

Comment Code	Comment	Response to Comment
	indirect, and cumulative adverse impacts of such large-scale habitat and watershed alteration and destruction.	
8-3	The Forest must not allow leasing of its lands to occur under the reckless BLM policies. It must develop a wide range of alternatives with much more protective provisions to prohibit leasing of sensitive lands, and to address stringent and protective INTEGRATED environmental protections in any lands where geothermal leasing and linked development is allowed to occur. Any development must be clustered. There is absolutely no need for this blanket analysis over a vast area.	The Forest Service has the authority to consent or not consent to geothermal leasing on National Forest System lands. The BLM has authority to issue leases. The Forest Service chose to analyze three alternatives based on concerns and these are adequate to cover the issues raised. In addition, leasing is not a ground-disturbing activity. Lease stipulations and notices plus additional NEPA provide protection measures that must be adhered to when future projects are proposed. A programmatic availability analysis is a reasonable and accepted standard approach to address leasing availability.
8-4	The whole geothermal process is wrongly segmented. Large-scale disturbance and habitat destruction occurs under so-called 'exploration' under minimal CEs or EAs. Sagebrush is bladed off and destroyed for well pads. Roads are built, permanently altering watersheds and wild land spaces. Then, incrementally amped up exploration bleeds/blends into full-blown 'development' - with significant environmental damage having already occurred. So it's almost like once lands have become so destroyed with disturbance under a series of 'exploration' actions, BLM just concedes the rest - piecing it all in with CEs and EAs at the steps leading up to full-blown industrial despoliation.	The analysis is phased according to current policy and direction for Geothermal Leasing. This EIS addresses leasing. Exploration is beyond the scope of this analysis. Site-specific NEPA analysis would be carried out on specific proposals. The level of NEPA analysis would be commensurate with concerns.
8-5	There is already a large disturbance footprint in this landscape and a cumulative impact area that must include that of the affected Bi-State (Mono Basin) population of sage-grouse, as well as the other affected sage-grouse PMUs scattered across much of Nevada, Gold mining aquifer mining, oil and gas exploration and development, irrigation, aquifer mining, and all manner of other harmful activities	Cumulative impacts have been addressed. In addition, site-specific NEPA analysis would be conducted on any future ground-disturbing proposals to address resource concerns.

Comment Code	Comment	Response to Comment
	are being imposed on habitats and aquifers, including habitats for the sage-grouse population.	
8-6	The viability and habitat components for the Mono Basin grouse DPS, other PMUs, and identified local populations must be addressed in great detail. How can habitat and populations be best sustained and remain viable? There are five Mono sub-populations, nearly all of which have birds at extremely low numbers. What are these numbers? Are they viable in the short, mid, or long term? The interacting population, as well as pygmy rabbit and other rare species, must be fully considered here. So must any activities in private lands.	Population viability is outside the scope of the NEPA analysis. Movement corridors were considered when creating stipulation maps. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
8-7	Actions necessary for passive restoration must occur, and there should be no geothermal development or activity of any kind in any of these habitats that are already under so much stress. So passive and active restoration measure must be carefully examined, too. This does not just mean killing some more junipers and to cheat grass. It means greatly reducing or removing livestock, livestock infrastructure, roading, and other intrusions.	Given the uncertainty of where geothermal development might occur, the proposal to cluster lands and limit the amount of acreage that the Forest Service would give consent on is not practical. Also, addressing livestock, roads, etc. is outside the scope of this project.
8-8	This EIS provides no basis what-so-ever for understanding the environmental setting and context related to sage-grouse or any other component of the environment	Affected Environment is described appropriately for the scale and type of decision to be made. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
8-9	Critical Site-Specific Baseline Information Remains Lacking -This Shoddy Programmatic DEIS Is NOT Site-Specific	This project is for leasing only, and is programmatic in design. Site-specific analysis is not required for this programmatic level of analysis; site-specific analysis will be conducted when a geothermal project is proposed.
8-10	Why is the Forest wasting the public's time with this appallingly deficient and data-less EIS? The DEIS in its present form provides no basis at all for tiering future leasing or development actions to. Please provide a SEIS with much more information on current habitat, wild land, recreational, watershed and other conditions.	Affected Environment is described appropriately for the scale and type of decision to be made in Chapter 3. This EIS is not a project specific EIS but rather a programmatic EIS that complies with the current policy and direction of Geothermal Leasing. Also, this EIS is only for leasing, not exploration or drilling. While site-specific analysis is not required for this programmatic level of analysis, site-specific

Comment Code	Comment	Response to Comment
		NEPA analysis will be conducted when a geothermal project is proposed, after leasing of the land has occurred.
8-11	There is no foundation laid for understanding direct, indirect, and cumulative impacts on native vegetation, wildlife, watersheds, and wild lands from this very harmful proposal. There is no basis for developing alternatives unless the full degree and severity of degradation and threats are clearly revealed, and analyzed.	This EIS is not site-specific and is programmatic in design; site-specific NEPA analysis will be conducted once leasing has occurred. The discussion of the RFD scenario and the existing baseline conditions are adequate for reasonable disclosure of potential impacts for this programmatic level EIS. This is discussed and analyzed in Chapter 4: Environmental Consequences.
8-12	A reader of this shell of a DEIS obtains no real understanding of the ecological condition of the complex soils, complex native vegetation, microbiotic crusts, status of weed invasion and risk of further weed invasion, level and degree of existing disturbances (grazing, roading, mining, energy, transmission, military activity), habitat alteration and fragmentation, recreational and wild land use and importance, cultural significance and importance, of these lands totaling far over half a million acres area - and with blocks remotely located plus all their surrounding lands as well. Bridgeport lands to be leased span over half a million acres (607, 560).	Affected Environment is described appropriately for the scale and type of decision to be made in Chapter 3. This EIS is not a project specific EIS but rather a programmatic EIS that complies with the current policy and direction of Geothermal Leasing. Also, this EIS is only for leasing, not exploration or drilling. While site-specific analysis is not required for this programmatic level of analysis, site-specific NEPA analysis will be conducted when a geothermal project is proposed after leasing of the land has occurred.
8-13	How much geothermal leasing occurs on BLM or other lands including on BLM lands across the Bi-state and other sage-grouse PMUs that are affected? Where are all leases? What else is going to be leased? Mapping of all leased areas and potential areas must be provided.	Assessing geothermal leasing on other lands is beyond the scope of the project. The purpose and need for this EIS is to determine if, in the Humboldt-Toiyabe National Forest, there may be lands that can be made available for geothermal leasing in order to allow the Forest Service to satisfy its respective statutory and policy mandates to develop environmentally responsible energy resources.
8-14	How close are any of these areas to large-scale potential solar developments? Is solar or wind development also likely in this landscape?	Cumulative impacts are discussed in Chapter 5. Specifically, Section 5.2.4 of the DEIS states: There are no existing or reasonably foreseeable solar, wind, biomass, or hydropower projects within the planning area.
8-15	How will existing and foreseeable mining (for example, the gold mining where many claims have already been staked just across the border in CA in the Bodie Hills	Assessing foreseeable mining is beyond the scope of the project. The purpose and need for this EIS is to determine if, in the Humboldt-Toiyabe National Forest, there may be

Comment Code	Comment	Response to Comment
	near Dry Lakes and elsewhere) affect wildlife, waters, watersheds, recreational, cultural values, water quality and quantity?	lands that can be made available for geothermal leasing in order to allow the Forest Service to satisfy its respective statutory and policy mandates to develop environmentally responsible energy resources.
8-16	How are vegetation treatments affecting native species? How many more acres, and where, are potentially to be disturbed and made more vulnerable to weed invasion and other losses through sagebrush treatment, pinyon-juniper treatment, etc.? This must be examined for the whole Bodie Hills region for example the recent proposal for large-scale disturbance of sagebrush for supposed fuels purposes in sites - where some cheatgrass is already present and any removal of sagebrush will promote hotter, drier cheatgrass fire-prone sites. Five field observations, Fall 2011.	Assessing vegetation treatments on native vegetation and calculating potentially disturbed acreages (leasing does not disturb land) is beyond the scope of the project. This EIS is not meant to analyze site-specific impacts, but is programmatic in design. The purpose and need for this EIS is to determine if, in the Humboldt-Toiyabe National Forest, there may be lands that can be made available for geothermal leasing in order to allow the Forest Service to satisfy its respective statutory and policy mandates to develop environmentally responsible energy resources. Once leasing has occurred further NEPA analysis will be conducted.
8-17	Where are all pending and existing geothermal leases? Who holds them? Does this mean that any protections that may come about as a result of this process will not be applied to existing leases and developments?	Lease issuance is under BLM authority and beyond the scope of this project. Protections for the area analyzed are applied as a result of this analysis. For existing leases, the BLM is responsible for any changes, with Forest Service involvement on National Forest System lands.
8-18	How is this related, and does it comply with the direction in the Federal Register Notice for a new EIS for sage-grouse that includes the HT Forest Plan being amended?	There is no direct relationship between this EIS and the western-wide sage-grouse EIS. Both are occurring independently of each other, however, results from the sage-grouse EIS would be adopted under this leasing EIS for future proposals with flexible protective provisions. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
8-19	We are alarmed that leases issued under this DEIS may result in potential drilling through aquifers, fracturing, use of all manner of unknown hazardous chemicals, placement of toxic naturally occurring materials from underlying strata onto land or their release into the air, weed expansion, loss of sagebrush - and thus sage-grouse migratory bird and songbird habitats as well as habitats for salt desert	Project is for leasing, not exploration or drilling. Further site-specific impacts will be assessed through surveys during the NEPA process when site-specific exploration and/or development proposals are submitted. Conditions of approval would be attached to every lease which would address protective measures for most of these resources. All of the resources issues would be discussed and analyzed

Comment Code	Comment	Response to Comment
	shrub and pinyon-juniper species, rare plants and rare plant habitats, loss of cultural sites, and loss of recreational uses and enjoyment through marring and destruction of wild lands	in the site-specific environmental analysis for all proposed geothermal projects.
8-20	A full and detailed analysis of species habitats and viability must be conducted as part of this process, and a valid SEIS issued. There is greatly inadequate information in the current DEIS on rare, imperiled and sensitive species habitats and populations, including population viability, carrying capacity, sustainability, suitability and capability.	Project is for leasing, not exploration or drilling, and is programmatic in design rather than site-specific. Further site-specific impacts will be assessed through surveys during the NEPA process when site-specific exploration and/or development proposals are defined. Conditions of approval would be attached to every lease which would address protective measures for most of these resources. All of the resources issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
8-21	This is a huge and diverse very arid wild land area with very limited potential to recover from the severe disturbances that geothermal activity would cause. We incorporate by reference the Bridgeport Ranger District's Great Basin South Rangeland EIS, and the entire Administrative record for that effort. To this day, there is no current valid NEPA analysis of the severe impacts of livestock grazing on the RD lands. WWP Appealed this deficient effort, and the Forest has done nothing for several years now. Alarming, the Forest had proposed to Open several Vacant allotments to extensive livestock disturbance. Nearly the entire Forest land, and much of the adjacent Bodie BLM lands are grazed by the hotel magnate Hilton hobby ranch so there is no economic argument in support of grazing here.	Comment is in regards to past authorizations, which are outside the scope of the project. Resources issues related to grazing and water would be discussed and analyzed in the site-specific environmental analysis for proposed site-specific projects.
8-22	A full current capability and suitability analysis must be provided as part of this process as it is necessary to understand lands being grazed that are not capable of withstanding grazing use, or are not suitable for continued grazing use in the 2012 world faced with cheat grass (which will be exacerbated by geothermal development),	Comment is in regards to past authorizations, which are outside the scope of the project. Resources issues related to grazing and water would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.

Comment Code	Comment	Response to Comment
	climate change, plummeting wildlife populations, and dropping aquifers. This is necessary for a current scientific understanding of the footprint and impacts of disturbance activities.	
8-23	The adverse impacts of cheatgrass increase due to this exploration and development in promoting wildfire must be considered a significant issue and fully analyzed. This is exacerbated by continued grazing disturbance.	This is beyond the scope of the project. Leasing will not result in any ground disturbing activities that could cause an increase in cheatgrass. Further site-specific analysis will be conducted when a geothermal project is proposed.
8-24	Only the most cursory and general information is provided. The Forest appears to be merely going through the motions to have a stack of paper it can point to and claim "analysis." The EIS provides no basis for development of a reasonable range of alternatives, or for adequate mitigation of any geothermal impacts.	This project is for leasing only, not exploration or drilling, and is programmatic in design rather than site-specific. Further NEPA analysis to address these resource issues would be conducted on site-specific locations when a geothermal project is proposed.
8-25	If there is no adequate current baseline - including of such things as the serious adverse impacts of ongoing (and historical too) disturbances and degradation to soils, waters, watersheds, microbiotic crusts, habitats and populations of wildlife and other rare and imperiled species, riparian and upland areas, etc. due to the direct, indirect and cumulative impacts of livestock grazing, facilities, roading, mining, transmission lines, agency veg and fuels treatments, historic mining deforestation and impacts on wild lands and watersheds, etc. - how in the world can the Forest expect to use this EIS for any purpose other than to collect dust on a shelf? It cannot be tiered to for leasing and/or development. The BLM-wide PEIS is far too general and non-specific, and is mainly a laundry list of scattered and largely ineffective BMPs and the like. So why bother?	Best available data was utilized and level of detail is sufficient given the scale of the analysis and the type of decision to be made. If leases are issued and If specific projects are proposed, on-the-ground surveys at that time would establish baselines. Lease stipulations and notices would provide direction and protection for resources.
8-26	How are BLM lands to be managed differently than Forest lands? Ineffective and uncertain SOPs (Standard Operating Procedures), BMPs, etc. that BLM has been using in no way shape or form protect resources as an example, the ugly habitat destroying and fragmenting highly intrusive	Comment is in regards to past authorizations, which are outside the scope of the project.

Comment Code	Comment	Response to Comment
	Grass Valley geothermal project.	
8-27	How much energy could be saved in Nevada by much greater conservation of resources including through use of distributed energy and other technology? What additional development will be needed just to get power to population centers?	This is beyond the scope of the project.
8-28	<p>This is an extremely arid area and any loss or degradation at all of surface waters due to geothermal development will have serious adverse impacts on a broad range of native biota.</p> <p>Such losses are inevitable as exploration activities blade new roads, blade well pads, drill wells, fracture apart water-bearing strata of the earth to test geothermal reliability and in development. Leasing/exploration blends into full-blown development under the very poor and segmented BLM process. Once blown to smithereens strata - and thus aquifer layers - can never be put back in place.</p>	<p>The project is for geothermal leasing only; no ground disturbing activities are proposed. Future geothermal exploration and development has the potential to alter water resources. This would be an indirect effect on water resources from leasing because leasing could eventually lead to geothermal exploration and development. Because the location of future exploration and development is unknown, only general effects on water resources are discussed. Future environmental review of proposed site-specific exploration and development would identify effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting water resources. In addition, resource issues related to grazing would be discussed and analyzed in the site-specific NEPA analysis for all proposed geothermal projects.</p>
8-29	The Forest must consider a full alternative that analyzes ALL impacts at the start not the ever-more-incremental BLM process - where leasing/exploration gets minimal analysis but has a cumulatively large footprint - and then blends into full-blown industrial development.	Alternatives are discussed in Chapter 2 and are analyzed in Chapters 4 and 5. The analysis of the Reasonable Foreseeable Development Scenario is the usual, customary, and accepted method of analyzing for leasing determination decisions, and the range of alternatives and level of analysis is appropriate for the decision to be made.
8-30	How much will any aspect of geothermal activity such increase potential for aquifer declines --- or earthquakes?	This is beyond the scope of the project. Resources impacts related to these issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
8-31	Blasting or other activity may by de-stabilize underlying strata and alter underground waters and linked surface flows including through likely future use of fracing and	The project is for geothermal leasing only; no ground disturbing activities are proposed. Future geothermal exploration and development has the potential to alter

Comment Code	Comment	Response to Comment
	the battery of dangerous water-polluting chemicals that are likely to be used.	water resources. This would be an indirect effect on water resources from leasing because leasing could eventually lead to geothermal exploration and development. Because the location of future exploration and development is unknown, only general effects on water resources are discussed. Future environmental review of proposed site-specific exploration and development would identify effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting water resources. Resources issues related to these issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
8-32	How will this combine with aquifer drawdown from hard rock and other mining, irrigation (as occurs at the private holdings), water mining and many other uses or activities already impacting aquifers? We are also greatly concerned that the aquifers (shallow, deep, link to surface water expression, etc.) are not adequately studied and defined.	Cumulative effects on water resources are discussed in Chapter 5. Because the location of future exploration and development is unknown, only general cumulative effects on water resources from leasing are discussed. Future environmental review of proposed site-specific exploration and development would identify cumulative effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting water resources. Resources issues related to these issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
8-33	What is the projected cone of depression from existing mining? What is it from proposed or foreseeable mining? What are the cumulative impacts likely to be?	The project is for geothermal leasing only; no ground disturbing activities are proposed. Future geothermal exploration or development would be analyzed on a site-specific basis.
8-34	How will the adverse impacts of climate change amplify these mining, irrigation, grazing desertification and water "development", geothermal, and other water losses and stresses?	Resources impacts related to these issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
8-35	Springs/seeps (What type are present? Where? How are they linked to aquifers or watersheds to be impacted?	Because leasing land does not involve disturbance to springs/seeps, describing the locations and characteristics of

Comment Code	Comment	Response to Comment
	What is their current ecological condition and stresses on them?	springs/seeps is beyond the scope of this environmental review. Future environmental review of proposed site-specific exploration and development would identify effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting water resources. Resources issues related to these issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
8-36	What biota is present and how healthy are the populations?), streams and other components of sage-grouse brood rearing habitat, rare aquatic biota habitat, migratory songbird habitat, are all greatly jeopardized by this wholesale geothermal proposal.	Affected Environment is discussed in Chapter 3. Resources issues related to these issues would be further discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
8-37	Why is the geothermal mapping so old? DEIS shows it is from 2008 hasn't a lot more info on ground and surface water in Nevada and California been developed in recent years?	Best available data was utilized.
8-38	What impact will the 21 existing geothermal plants in NV have? The plants in CA? Other energy projects? Mining? The cumulative impacts area must include a broad region of neighboring California. How many plants are honestly foreseeable?	Cumulative impacts in the planning area are discussed in Chapter 5. Rationale for the Reasonable Foreseeable Development Scenario are described in Chapter 2 and utilize conservative values that overestimate development and production.
8-39	DEIS 1-12 states that there are 65 geothermal projects in development in Nevada alone. So what impact will this have on aquifers already stressed to the breaking point?	Cumulative effects on water resources are discussed in Chapter 5. However, since the project is for leasing only and the analysis is based on the reasonable foreseeable development, only general cumulative effects on water resources from leasing can be assessed. Future environmental review of proposed site-specific exploration and development would identify cumulative effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting water resources. Water resources issues related to these future actions would be discussed and analyzed in the site-specific environmental analysis for all

Comment Code	Comment	Response to Comment
		proposed geothermal projects.
8-40	We are greatly concerned at the current proliferation of all manner of energy proposals and all the development and roading, powerlines, water stress and depletion, weed invasions that this entails.	Project is for leasing only and would not result in ground disturbing activities. Projects will be analyzed on a site-specific basis when they are proposed.
8-41	All of the geothermal and other activity will result in increased roading, and seasonal disturbance of species habitats and populations already stressed by desertification and chronic livestock grazing disturbances.	Project is for leasing only and would not result in ground disturbing activities. Projects will be analyzed on a site-specific basis when they are proposed.
8-42	The geothermal PEIS was superficial, and the SOPs, BMPs and near-nonexistent mitigation are greatly inadequate to protect sage-grouse, pygmy rabbit, migratory birds, aquatic resources, water supplies, etc	Project is for leasing only and would not result in ground disturbing activities. Projects will be analyzed on a site-specific basis when they are proposed.
8-43	<p>This current HT EIS cannot suffice for site-specific analysis. It is in many ways just as superficial as the geothermal PEIS. It does not provide adequate site-specific analysis including a valid environmental baseline or a realistic analysis of threats and foreseeable development.</p> <p>This baseline is needed to delineate all areas that must be off-limits to development under a much-expanded range of alternatives that will protect Forest values for the American people. This includes all Mono Basin and other sage-grouse habitats, all pygmy rabbit habitats, rare species habitats, migratory birds, all roadless and unroaded lands, and visual and aesthetic values, too.</p>	Project is for leasing, not exploration or drilling, and is programmatic in design, not site-specific, meaning that further NEPA analysis and surveys will be completed on identified sites when a geothermal project is proposed. The level of detail given is sufficient for this scale of analysis and the type of decision to be made. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2 and analyzed in Chapters 4 and 5.
8-44	Wildlife will suffer disruption of mating, foraging, other behaviors. This action clearly conflicts with existing conservation plans and recovery goals (not to mention the new BLM sage-grouse EIS process), reduction in water (aquifer declines and surface expression on top of all the livestock water development damage, mining, other energy, irrigation, and climate change impacts), loss and/or fragmentation of wildlife habitat.	Project is for leasing only. Impacts from exploration or development activities would be assessed during the NEPA process at the project level. However, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.

Comment Code	Comment	Response to Comment
8-45	A much more detailed site-specific baseline must be provided. For example roading and current description of road types and impact analysis - density, mapping, weediness, etc. must be provided. All livestock infrastructure, veg /fuels/other treatments, seedings, etc. and all related impacts must be thoroughly mapped and impacts assessed.	Project is for leasing, not exploration or drilling, and is programmatic in design, not site-specific, meaning that further NEPA analysis and surveys will be completed on identified sites before future phases of the project commences. The level of detail given is sufficient for this scale of analysis and the type of decision to be made. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2 and analyzed in Chapters 4 and 5.
8-46	How much does the existing burden of fencing impact wildlife and wild lands across this area of proposed leases/development? Won't this proposal add even more fencing, and other barriers and hazards to wildlife including polluted waters that animals may try to drink? The explo stage of Grass Valley had ugly orange netting fence that could entangle animals any development is likely to have permanent fencing.	This project is for leasing only and is programmatic in design. Fencing would be site-specific and NEPA analysis would be conducted when a geothermal project is proposed. Discussion of fences and potential impacts for RFD activities will be reviewed and revised if appropriate.
8-47	We are greatly concerned about the impacts of this process on disruption of mating, foraging and other behaviors for migratory birds and raptors (noise, visual intrusions, habitat loss and fragmentation, etc.), the conflicts of this with existing recovery plans and goals, and the reductions in forage, water, space and loss or fragmentation of habitats that all phases of geothermal activity would cause. The TES species concerns are enormous. Many of the TES species in this area (pygmy rabbit, Mono Basin sage-grouse, for example) are already at every low population levels and face a battery of existing threats from cheatgrass to livestock grazing schemes that impose livestock use on top of breeding, or nesting sage-grouse or wintering habitats, on top of nesting migratory birds, or on top of pygmy rabbit burrows.	This project is for leasing only, not exploration or drilling, and is programmatic in design rather than site-specific. Further NEPA analysis to address these resource issues would be conducted on site-specific locations when a geothermal project is proposed.
8-48	How exactly is grazing conducted in the affected lands? What use levels, seasons, mandatory actions are applied? Where is all current NEPA analysis of this action? What	Assessing livestock grazing is beyond the scope of the project. The purpose and need for this EIS is to determine if, in the Humboldt-Toiyabe National Forest, there may be

Comment Code	Comment	Response to Comment
	has actual use been? What is the current ecological condition/health of grazing-disturbed lands, habitats and watersheds?	lands that can be made available for geothermal leasing in order to allow the Forest Service to satisfy its respective statutory and policy mandates to develop environmentally responsible energy resources.
8-49	How much of a threat does West Nile virus pose? How are livestock grazing activity (trampling and pocking of damp soils, and facilities such as stock ponds and water troughs and pipelines or water hauling, mine pits or discharge, irrigation, and other factors currently providing or expanding mosquito habitat? How will geothermal activity increase this though pits, ponds, water discharges, etc.? What will the cumulative impacts be? What risk to habitats and populations does this pose?	Assessing the threat of the West Nile virus, livestock impact, and geothermal are beyond the scope of the project. This project is for geothermal leasing, not exploration or drilling, and future site-specific NEPA analysis will be conducted when a geothermal project is proposed. The purpose and need for this EIS is to determine if, in the Humboldt-Toiyabe National Forest, there may be lands that can be made available for geothermal leasing in order to allow the Forest Service to satisfy its respective statutory and policy mandates to develop environmentally responsible energy resources.
8-50	Impacts on water quality and quantity including perennial surface flows, quality and productivity of native vegetation, and a host of other issues must be expanded upon in a SEIS.	Leasing land does not involve disturbance to water quality, so comment is beyond the scope of this environmental review. Future environmental review of proposed site-specific exploration and development would identify effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting water resources.
8-51	How in the world could the Forest list wild horses as a significant issue, but not domestic livestock grazing including that conducted by hobby rancher Barron Hilton and others where livestock are grazed and trailed over large areas in large numbers over all seasons of the year? Also, are there domestic sheep operations that threaten bighorn herds or prevent bighorns from occupying otherwise suitable habitats due to disease risks? How will this all place further stress on bighorns or potentially displace them? The degree and severity of degradation from chronic livestock grazing disturbance must be assessed. A detailed analysis if carrying capacity, stocking rates, actual use (vs. permitted use), monitoring	Effects from livestock grazing are beyond the scope of this project. Bighorn sheep are discussed in Chapters 3 & 4.

Comment Code	Comment	Response to Comment
	information, facilities location and impacts, and analyses of land degradation must be provided with and examined in detail in a SEIS. Mitigation must include retirement of grazing allotments.	
8-52	<p>Alt 1 and Alt. 2 are in reality quite similar. There is really no viable conservation alternative at all provided, nor is there valid baseline and site-specific analysis of No Action. Why can't NV or other renewable energy be accommodated on BLM and private lands? Why is it necessary to</p> <p>destroy the Forest, especially since BLM has been allowing willy-nilly energy project disturbance across Nevada further imperiling sage-grouse, pygmy rabbit, migratory birds and other wildlife?</p>	<p>Alternatives are discussed in Chapter 2. Alternatives 1 and 2 outline different stipulations and the maps capture the variation between the alternatives. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance. Activities on private lands are beyond the scope of this project. Project locations depend on the resource location and cannot just be chosen at will.</p>
8-53	<p>On DEIS Map 2-6, which attempts to portray alternatives, it is hard to distinguish sage-grouse areas from slopes, recreational facilities, water bodies, etc.</p>	<p>Maps in Chapter 2 display the various elements that may have NSO or CSU stipulations and for which data was available.</p>
8-54	<p>The Forest must clearly lay out and map sage-grouse and other rare species habitats including all animals and plants habitats, and detail threats not just lump them all together as this EIS does.</p>	<p>Such mapping is not necessary for geothermal leasing decisions. Special status species habitat would be taken into account when attaching stipulations to leases and on the site-specific project level of future phases. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.</p>
8-55	<p>The Forest alternatives appear to maximize industry desires and to have limited NSO areas to the maximum degree possible. Plus limiting surface occupancy is not sufficient to protect aquifers and linked surface water flows, or likely weed spread, or the Footprint of access roading. These allow vast areas to be developed, disturbed and ultimately industrialized. It would allow intrusive ugly, noisy large-scale development in many areas despite a host of other conflicts including old growth communities, highly scenic wild land settings and vistas, on top of erosion-vulnerable soils, on top of</p>	<p>Project is for leasing. Site-specific analysis would be conducted when a geothermal project is proposed. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2 and analyzed in Chapters 4 and 5.</p>

Comment Code	Comment	Response to Comment
	plunging aquifers, on top of rare species such as migratory birds and pygmy rabbit, and many other concerns.	
8-56	The lek buffer is greatly inadequate. A five mile minimum buffer surrounding all important sage-grouse habitats must be considered. Plus, detailed overlays of habitat type and quality must be provided. Current ecological conditions, and connectivity must be analyzed and mapped. How, where and when do the native animals from big game (bighorns, mule deer, antelope to mountain quail to sage-grouse) use these habitats at present?	Project is for leasing. Site-specific analysis would be conducted when a geothermal project is proposed. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
8-57	The lights, road noise, facility noise, increased nest, egg and other predators, etc. related to an industrial geothermal facility - or from explo using massive cranes and drill rigs that look like the Deepwater Horizon on dry land and all the associated surface human disturbance and its impacts must be analyzed in much greater detail	Project is for leasing. Site-specific analysis would be conducted when a geothermal project is proposed. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2 and analyzed in Chapters 4 and 5.
8-58	This is EIS greatly inadequate in its examination of all the factors and disturbances that accompany modern day geothermal explo and development both below and above ground. This form understanding is needed to determine effects on species habitats and populations.	The RFD scenario is based upon the current knowledge of geothermal development. Project is for leasing. Site-specific analysis would be conducted when a geothermal project is proposed. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2 and analyzed in Chapters 4 and 5.
8-59	These are some of the worst alternatives, and worst depiction of alternatives we have seen in any recent agency document.	Project is for leasing. Site-specific analysis would be conducted when a geothermal project is proposed. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2, which outlines the alternatives development process and alternatives considered but eliminated, and analyzed in Chapters 4 and 5.
8-60	The DEIS's Grass Valley proposed area is right next to the BLM developed area and new transmission line it spawned on Forest land (done under a 2011 EA) – illustrating perfectly how agencies connive to segment analysis, and to avoid full and integrated NEPA analysis. There is no adequate context and setting provided on any	Comment is in regards to past authorizations, which are addressed in Chapter 5 Cumulative Impacts. The development of this EIS follows the Forest Service and BLM direction for a phased approach to geothermal leasing and development per the National MOU.

Comment Code	Comment	Response to Comment
	of the maps of the similar Alternatives and Proposed Actions. Certainly this all was foreseeable but the BLM in Nevada routinely violates NEPA and segments actions even when it knows full well that all manner of development is linked, and will ensue. We incorporate the record for the full project 2011 Grass Valley geothermal BLM and Forest process into this process by reference.	
8-61	The Controlled Surface Use parameters are greatly inadequate. Examples: A mere 500 ft. riparian buffer (sediment can erode down slopes, or in ephemeral and intermittent waterways), blasting, fracing, etc. in explo-development can greatly affect waters a considerable distance from a waterway but those underground and/or headwater areas are in reality connected to the waterway.	Project is for leasing. Site-specific analysis would be conducted when a geothermal project is proposed. Future environmental review of proposed site-specific exploration and development would identify effects on aquatic resources and compliance with applicable laws and regulations. Where necessary, it would also identify methods for protecting aquatic resources. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2 and analyzed in Chapters 4 and 5.
8-62	What are all flow rates for all waters for all seasons of the year? Is there data on how these may have changed over time?	Leasing land does not involve disturbance to surface water, so comment is beyond the scope of this environmental review. Future environmental review of proposed site-specific exploration and development would identify effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting water resources.
8-63	<p>We are alarmed that a large amount of data and info necessary for competent analysis and understanding of ecological impacts and alternatives development and comparison is "not available." Why have you even bothered to put out a DEIS if all necessary site-specific baseline</p> <p>info is not available? WHY has the Forest overlapped buffers, visual, and IRAS in its mapping? Why has it made it impossible to distinguish each of these elements? WWP recently encountered what could only be described as</p>	Maps are based on best available data and were developed to Agency and industry standards. The appropriate data for the EIS was used, given the scale of the EIS and scope of analysis. This EIS is for leasing only. Site-specific impacts would be analyzed when a geothermal project is proposed.

Comment Code	Comment	Response to Comment
	purposefully dishonest and misleading mapping in the Ely Rangeland EIS now we are seeing this same jumbled nonsense here.	
8-64	Why is there not detailed information on recreational aspects such as visual, noise, roading, weed or other intrusions into IRAS (or nearby BLM WSAs) that would occur? Of UIs? Of TES species? Sensitive species? Cultural? Other data and concerns? On increased wildfire due to all manner of disturbances, and weeds?	Project is for leasing. Site-specific visual analysis would be conducted when site-specific projects are proposed. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2 and analyzed in Chapters 4 and 5.
8-65	ALL sage-grouse habitats must be avoided by 5 miles under an expanded range of alternatives, along with all IRAs, roadless and other critical rare species habitats, as well as old growth vegetation communities.	Project is for leasing. Site-specific analysis would be conducted when a geothermal project is proposed. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2 and analyzed in Chapters 4 and 5. However, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
8-66	Where are all old growth sagebrush, salt desert shrub,pinyon-juniper, to other communities located, and how will they be protected from roading, weeds, and other intrusions related to explo and development?	Project is for leasing. Site-specific analysis would be conducted when a geothermal project is proposed. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2 and analyzed in Chapters 4 and 5.
8-67	How is livestock grazing degrading all of the components – including composition, function and structure, at present?	Livestock grazing is beyond the scope of this project.
8-68	It is not enough to just have non-consent for 3 miles around leks. Any buffer (no matter the size) must be applied to winter habitats, nesting habitats, brood rearing habitats. The grouse populations here are already very small.	An additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
8-69	We are greatly concerned that the core model is completely inadequate to protect Mono Basin and other sage-grouse in a Basin and Range setting. The core model was developed in areas with large continuous stands of sage not the naturally diverse and complex Basin and Range setting. Plus, it sacrifices vast areas including those where agencies just might not have much data for any of a variety of reasons hard to get to in mud season,	An additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.

Comment Code	Comment	Response to Comment
	expenses to overfly, private land access barred, etc. Details of how this modeling was developed and applied - as well as for all the many other models and assumptions used in the EIS, must be fully examined in a SEIS.	
8-70	Sage-grouse cannot be the only species where stipulations are applied. A greatly expanded range of Alts, must effectively protect sage-grouse, and migratory birds, mountain quail, golden eagles, and other species, as well.	Stipulations for special status species were developed and would be applied under Alternatives 1, 2, and 3.
8-71	The Potential Production Capacity appears to be greatly under-estimated. Inadequate data is provided to understand how - and the quality of info from which it is derived.	Rationale for the Reasonable Foreseeable Development Scenario are described in Chapter 2 and utilize conservative values that overestimate development and production.
8-72	The Forest cannot rely on the general PEIS and its scattered lists of possible BMPs/SOPs for what it describes as (2-12): estimates of disturbance based on the phases of geothermal leasing and development are discussed in the PEIS or for any other part of this EIS.	The analysis was tiered from the 2008 Geothermal PEIS, but made specific for leasing over the described areas. Stipulations and notices were generated in respect to resource concerns seen in this EIS. The RFD is an assumption, based on previous geothermal operations and is sufficient for estimating impacts in this EIS.
8-73	There is a confusing discussion of geothermal facility sprawl where the Forest appears to be proposing that facilities be allowed to sprawl willy-nilly, and not be bundled. Sprawl cannot be allowed. The Forest must hone in on one or two very limited areas in Bridgeport, after determining where impacts would be least and develop an alternative based on development only in these limited areas. The other areas are simply not suitable for development. This is the opposite of the current deficient alternatives.	Project is for leasing. Site-specific analysis would be conducted when a geothermal project is proposed. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2 and analyzed in Chapters 4 and 5.
8-74	What is the rationale for all of the assumptions made here that only 50% of development would occur on the Forest for example. If that is indeed the case it shows that there is likely much more room for development to be bundled on private lands so much less Forest land is necessary. Are there plans in the wings that the Forest is not revealing and fully discussing here? Where does this	Rationale for the Reasonable Foreseeable Development Scenario are described in Chapter 2 and utilize conservative values that overestimate development and production.

Comment Code	Comment	Response to Comment
	50% (or any of the other assumptions) from the EIS really come from?	
8-75	Austin, Ely, Tonopah Area: The maps don't even provide any reference the Forest appears to be masking the locations and skimming over the baseline as much as possible.	Figure 1-1 depicts the planning area and shows locations of the four decision areas. In addition, Figures 1-2 and 1-3 show close ups of the decision areas and include inset maps of the relative location of each decision area.
8-76	How can the Forest go forward with this when there is no basis? Example: Existing lit provides no estimate of geothermal potential for these areas. 2-13.	Purpose and Need for the project is discussed in Chapter 1. Rationale for the Reasonable Foreseeable Development Scenario are described in Chapter 2 and utilize conservative values that overestimate development and production. Best available data appropriate to size of the project and level of analysis for leasing was utilized.
8-77	In reality, this entire shallow, cursory effort is YET ANOTHER PEIS nearly devoid of critical data and analysis.	Purpose and Need for the project is discussed in Chapter 1. Best available data appropriate to size of the project and level of analysis for leasing was utilized.
8-78	The Forest must Withdraw all lands not found suitable for this industrial development and disturbance this includes ALL sage-grouse and pygmy rabbit habitats, important watersheds and connected springs, seeps, roadless areas and WSR and any areas adjacent to WSAs, etc.	The decision on this EIS would protect resources with lease stipulations and notices. Further protection would be afforded through specific on-site surveys and subsequent NEPA.
8-79	How is the Ely parcel area related to the new SWIP powerline?	This is beyond the scope of the project.
8-80	The FRDS (for example at DEIS 2-11, 2-12, etc.) are based on such limited and spotty info that no real analysis is possible.	Rationale for the Reasonable Foreseeable Development Scenario are described in Chapter 2 and utilize conservative values that overestimate development and production.
8-81	The DEIS refers to yet-to-be-identified areas this means there is tremendous uncertainty, and the Forest really has no idea what could occur. Why isn't there higher quality geothermal, geological, water, aquifer, etc. data found here?	Purpose and Need for the project is discussed in Chapter 1. Rationale for the Reasonable Foreseeable Development Scenario are described in Chapter 2 and utilize conservative values that overestimate development and production. Best available data appropriate to size of the project and level of analysis for leasing was utilized.
8-82	RFD This has four phases: Explo, drilling, utilization, reclamation abandonment. Each of these consists of a whole host of damaging and disturbing activities from off-	Rationale for the Reasonable Foreseeable Development Scenario are described in Chapter 2 and utilize conservative values that overestimate development and production.

Comment Code	Comment	Response to Comment
	road travel crushing vegetation and collapsing animal burrows and spreading weeds to graveling well pads to huge new X mission lines, to disposal of toxic materials as sites are operated and reclaimed.	Specific impacts would be analyzed in site-specific NEPA analyses at each stage of proposed activity.
8-83	The light, and noise pollution must be analyzed in great detail.	Light is addressed on page 4-81. Noise is analyzed in Section 4.22 as well as in the wildlife impacts analysis.
8-84	The DEIS provides much too broad and uncertain a range land areas directly disturbed from 53-367 acres total acreage of disturbance'.	Rationale for the Reasonable Foreseeable Development Scenario are described in Chapter 2 and utilize conservative values that overestimate development and production.
8-85	Plus WHAT would the visual, noise, pollution, and aquifer disturbance footprint of these factories in the desert really be?	Environmental Consequences are analyzed and discussed in Chapter 4. Specific impacts would be analyzed in site-specific NEPA analyses at each stage of proposed activity.
8-86	Table 2-2 provides disturbance estimates. They appear to be based on crushed, bulldozed, smashed vegetation/soil direct disturbance only. It does not provide any analysis of sound, visual, or other intrusion, and pernicious weed infestation and spread, or disruption of critical wintering habitat that could drive sage-grouse to extinction across this region, or herbicide use and drift after all manner of herbicides need to be used to try to control weeds in explo and development areas on top of grazing and other weed-spreading disturbances in this landscape.	Rationale for the Reasonable Foreseeable Development Scenario are described in Chapter 2 and utilize conservative values that overestimate development and production. This EIS is for leasing only and would not result in ground disturbance. Specific impacts would be analyzed in site-specific NEPA analyses when a geothermal project is proposed.
8-87	The Footprint of ecological disturbance must be fully considered here, and fully mitigated not just acres bulldozed. In reality, the Footprint of the linked explo, factories, noise, aquifer depletion and potential pollution, powerlines, roading etc. will be immense. It is also necessary to determine and analyze the adequacy of any mitigation that is applied.	Rationale for the Reasonable Foreseeable Development Scenario are described in Chapter 2 and environmental consequences are addressed in Chapter 4.
8-88	Fault mapping. How will geothermal explo and development, and alteration of underlying aquifers including as combined with mining or other blasting and serious disturbance trigger earthquakes?	This is beyond the scope of the project.
8-89	The mineral resource analysis is a joke. There is nothing of detail that examines the severe disturbance footprint	The first part of this comment is beyond the scope of this analysis. Cumulative impacts are discussed in Chapter 5.

Comment Code	Comment	Response to Comment
	that gold, potentially new materials mining like lithium, and other mining is very likely to have on these lands at the same time that all of this geothermal disturbance unfolds (roads and weed impacts, aquifer drawdown, noise, lights traffic killing animals on roads, powerlines, etc.)	
8-90	DEIS 3-24 to 3-26. There is no analysis of the current extent and ecological conditions of soils and microbiotic crusts. How is grazing, roading, etc .affecting soils and crusts? How will geothermal activity add to the disturbance problems?	Environmental consequences are analyzed in Chapter 4. Soil condition assessments will occur at any future construction sites. BMPs will be in place to minimize impacts. Grazing is beyond the scope of the project.
8-91	DEIS 3-28-3-37. Ground, surface water. There is no adequate baseline of current conditions and the degree of degradation and/or depletion provided. How bad are things already including due to historic and chronic disturbances? This must be examined based including based on current site-specific information.	Future environmental review of proposed site-specific exploration and development would identify effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting water resources.
8-92	How severe are continued chronic grazing disturbances when conducted on top of a landscape that suffered large-scale losses of soils, waters, watershed processes, and vegetation community composition, function, and structure under historic uses and disturbances?	Analysis of grazing disturbance is beyond the scope of this project.
8-93	Water rights, current flows, changes in flows, over-allocations, stresses on aquifers, etc. all MUST be detailed.	Future environmental review of proposed site-specific exploration and development would identify effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting water resources.
8-94	WHY are springs not shown?	Leasing land does not involve disturbance to springs; describing the locations and characteristics of springs is beyond the scope of this environmental review. Future environmental review of proposed site-specific exploration and development would identify effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting water resources.

Comment Code	Comment	Response to Comment
8-95	Where is all flow data, analysis of adverse impacts of water developments, livestock use, stocking rates seasons of use, etc. on springs, seeps and streams not provided?	Project is for leasing. Site-specific analysis would be conducted when a geothermal project is proposed.
8-96	What toxic materials may be released into the air? Will steam increase inversions or ground level fog?	Project is for leasing. Site-specific analysis would be conducted when a geothermal project is proposed.
8-97	The Forest cannot limit its analysis to only those species of interest on its lands – since all of these activities will adversely impact species shared with BLM lands – and BLM has many different sensitive species – such as loggerhead shrike, sage thrasher, ferruginous hawk, golden eagle, etc. A SEIS must be prepared that examines all the disturbances, disruptions and losses to these species, too.	Project is for leasing. Site-specific analysis would be conducted when a geothermal project is proposed. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2 and analyzed in Chapters 4 and 5. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
8-98	The DEIS air discussion fails to adequately address dust, herbicides, toxic materials – including those brought to the surface or used in the process, and their release into air, and then their effects on humans and biota, as well as likely on the ground and water where they will end up.	This is beyond the scope of the project. Future environmental review of proposed site-specific exploration and development would identify effects on specific resources, and compliance with applicable laws and regulations. Where necessary, it would also identify methods for protecting these resources.
8-99	The DEIS is patterned after the dishonest, misleading and now abandoned HT Ely Westside Rangeland EIS in so many ways – for example – a meaningless Table of acres of vegetation with no mapping or any detailed analysis. This says nothing about their conditions, interspersion, disruptions, and location in the context of explo and development. WWP is Attaching its Appeal of that Decision, too – as it illuminates cumulative impacts of grazing – as well as the Forest’s current pattern of producing hollow, dishonest documents lacking essential basic info.	Comment is in regards to past authorizations, which are outside the scope of the project.
8-100	The Forest cannot rely on a review for Fish and Wildlife. WHERE are current baseline inventories across the project area? There is no way to examine and determine direct, indirect and cumulative impacts unless current survey and habitat quality info is provided.	The baseline data presented is adequate for the programmatic level of analysis being conducted. Surveys would be conducted on a project-specific level to establish site-specific baselines. Information regarding the status of LCT and CSF within the project area is included in the

Comment Code	Comment	Response to Comment
		Biological Assessment.
8-101	The descriptions of animals and their habitats are programmatic. 3-43 to 3-55. This is followed by substanceless TES section see DEIS 3-55 to 3-80 for every empty statements made for species mentioned here.	The project is for leasing and the environmental consequences are appropriate for the scale of the project.
8-102	For example, we have repeatedly inquired about mussel shells near Rough Creek and asked the forest if these were California floater or other rare aquatic species but the Forest has never bothered to answer this. Have there been thorough baseline inventories for all biota inhabiting springs, seeps, streams, playas, etc. If so when, where, and what did they find?	This is beyond the scope of the project. Future environmental review of proposed site-specific exploration and development would identify effects on specific resources, and compliance with applicable laws and regulations. Where necessary, it would also identify methods for protecting these resources.
8-103	We are concerned that the Forest discards species like yellow-billed cuckoo especially since WWP has documented stockwater troughs on the Ely RD drowning migratory birds that do not nest in an area, but that stop at scarce waters during migration. See Ely Westside Appeal (Attached).	Comment is in regards to past authorizations, which are outside the scope of the project.
8-104	Wild horses and burros, Livestock grazing. What are the adverse impacts of livestock grazing on the Powell and Montgomery WHTs? How are these linked to BLM lands? What is the current horse herd viability, grazing competition, disturbance from domestic livestock, etc. How is a thriving ecological balance being maintained? When and how was AML set? What is the current ecological condition? The Forest is clearly hiding from addressing domestic livestock grazing – it doesn't even provide the names of the grazing allotments -outside the WHTs. What kind of biased, anti-scientific madness is driving this shoddy geothermal effort? We are alarmed at the current leadership of the HT – where grazing has apparently been placed on some kind of pedestal – likely due to managers who are afraid of placing controls on the extensive disturbance and damage to sage-grouse and	Effects from wild horse, burros, and livestock grazing are outside the scope of this project. Future environmental review of proposed site-specific exploration and development would identify effects on specific resources, and compliance with applicable laws and regulations. Where necessary, it would also identify methods for protecting these resources.

Comment Code	Comment	Response to Comment
	other habitats that it is causing occurring.	
8-105	Where are these raptor nests located (see 3-53) at least within a section. We find it very hard to believe that these are the only raptors. WHERE is all the California Game and Fish and other data? For golden eagles, and all other biota impacted in any way by this project's immense Footprint? Intensive surveys must be conducted.	This project is for leasing only. Leasing would not result in ground disturbing activities. Site-specific analysis would be conducted when a geothermal project is proposed. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
8-106	<p>We are alarmed at the casual dispensing of rare plants and habitats. Where across this area have comprehensive rare plant (and rare animal surveys actually been conducted? This is necessary to know the basis for the Forest casting aside species at every possible chance.</p> <p>Example: Table 3-6. Again, what the forest has done is produce an empty, meaningless programmatic EIS.</p>	This phase of the project and this EIS is for leasing only, which would not cause land disturbance. Further surveys would be completed on a project-specific basis and protections commensurate with the activity applied.
8-107	Bodie and Rough Creek watersheds must be fully protected for recovery of LCT.	Information regarding the status of LCT, and CSF within the project area is included in the Biological Assessment. Consultation with US Fish and Wildlife Service will be completed prior to a decision being made. A 300-foot NSO buffer for Lahontan cutthroat trout would be applied. Future environmental review of proposed site-specific exploration and development would identify effects on LCT and would be in compliance with applicable ESA laws and regulations. Where necessary, it would also identify additional measures for protecting LCT. Future environmental review of proposed site-specific exploration and development would identify effects on LCT and compliance with applicable ESA laws and regulations. Where necessary, it would also identify methods for protecting LCT.
8-108	The damage to, or pollution from, surface or underground aquifers from this proposal may affect downstream waters in the Walker River or other ESA habitats. ESA consultation must occur.	Consultation with US Fish and Wildlife Service will be completed prior to a decision being made. Information regarding effects to LCT within the project area is included in the Biological Assessment. A 300-foot NSO buffer for Lahontan cutthroat trout would be applied.

Comment Code	Comment	Response to Comment
8-109	White River, Ellison Creek and Smith Creek are clearly adversely impacted and two of these occur in the Ely Rangeland EIS area yet there is no current NEPA analysis of grazing impacts, so no valid programmatic or any other analysis can possibly be conducted.	This phase of the project and this EIS is for leasing only, which would not cause land disturbance. Further surveys would be completed on a project-specific basis and protections commensurate with the activity applied.
8-110	The Forest must provide the highest visual and other protections to all roadless areas. The Classifications in 3-106 are completely invalid. The existing mining in or near this area is visible over a vast region. Modern geothermal plants can be every bit as visually intrusive as a mine – big access roads. Factory-like appearance, water impoundments, bright lights, noise, high levels of road traffic, etc.	Environmental consequences for visual resources are addressed in Chapter 4. Comments are noted.
8-111	How will the darkness of night skies be protected? Where is there analysis of what all of this development will do to detract from recreational uses and enjoyment, and potentially disturb, stress or even kill wildlife – such as migratory birds that may be attracted to glowing bright lights in the middle of nowhere – and collide with high voltage wires?	Light is addressed on page 4-81. Noise addressed in Section 4.22. In addition, impacts on visual resources and noise would be analyzed through project-level NEPA when a geothermal project is proposed.
8-112	ALL of the cursory vapid analysis in Chapter 4 is based on a profound lack of environmental information in Chapters 2 and 3, and no valid conclusions of any kind can be drawn by the Forest.	Analysis is based on best available data and is appropriate for scale of the project.
8-113	FEIS 4-1 states that the lease is commitment of the resource for potential future exploration, development, etc. So what WOULD the impacts on the environment be if all the acreage open for leasing under the very limited alternatives were leased and developed? Wouldn't this be orders of magnitude greater than that considered under the EIS scenarios? Then what if all the gold or other mining, and any oil and gas claims, too - in or near these areas - are also developed?	Rationale for the Reasonable Foreseeable Development Scenario are described in Chapter 2, and environmental consequences are addressed in Chapter 4. If a lease is offered, the lessee has a "reasonable expectation" of being able to proceed with exploration, development, and production. This "reasonable expectation" is tempered with lease stipulations and notices, plus additional NEPA findings that result from on-the-ground, site-specific analysis. The entirety of the area would not be leased, since geothermal resources are not a blanket resource, but located where geology allowed.

Comment Code	Comment	Response to Comment
8-114	If 3 to 6 power plants are built in Bridgeport, then one each in the other areas would be built – then why lease the entire huge area that would be leased under the proposed or only alternative action? Why not simply identify the areas now, require Bridgeport be bundled in a single area? This whole process makes no sense.	Purpose and Need are described in Chapter 1. Rationale for the Reasonable Foreseeable Development Scenario are described in Chapter 2, and environmental consequences are addressed in Chapter 4.
8-115	The sage-grouse analysis relies on old outdated information and is greatly inadequate to identify and understand impacts, or to develop integrated mitigation to protect and sustain and recover habitats and populations.	An additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
8-116	The Forest must also analyze potential financial speculation on leases and explo – and the damage that may be done.	This is beyond the scope of the project.
8-117	The Forest needs to prepare a SEIS – or scrap this whole meaningless exercise.	Comment noted.
8-118	All the adverse impacts of roading, energy development, and threats posed by invasive species and grazing to which invasive species are linked, must be fully analyzed based on current scientific information – see USFWS March 2010 Warranted But Precluded finding for Greater sage-grouse, see Knick and Connelly (2009) Studies in Avian Biology. See Literature on cd.	Impacts from livestock grazing is beyond the scope of this project.
9-1	There are continuing concerns about the cumulative visual impacts on public lands users' experiences from certain activities (temporary and permanent). Some notable activities include proliferation of new roads, poorly-sited and designed structures, lack of co-location of infrastructure and improper lighting, to name a few.	Project is for leasing. Site-specific visual analysis would be conducted when a geothermal project is proposed. Affected Environment is discussed in Chapter 3. Alternatives are described in Chapter 2 and analyzed in Chapters 4 and 5.
9-2	There is a concern about the cumulative visual impacts on public lands users' experiences. For example, dark sky attributes are a finite resource and subject to increasing deterioration as inappropriately-lighted development covers the landscape.	Light is addressed on page 4-81. Noise is addressed in Section 4.22. Impacts on these resources would be analyzed through project-level NEPA when a geothermal project is proposed.

Comment Code	Comment	Response to Comment
9-3	A comprehensive look at visual impacts should be considered when federal agencies review any development plan on public lands in Nevada, and nationally.	Visual impacts would be analyzed on a site-specific basis when a geothermal project is proposed.
9-4	The Nevada Division of State Lands encourages federal agencies to develop a consistent policy and condition of approval that can be required of applicants and included in NEPA decisions.	Comment noted. Developing a consistent policy and condition of approval is outside the scope of this analysis.
9-5	<p>Utilize consistent lighting mitigation measures that follow “Dark Sky” lighting practices.</p> <p>Effective lighting should have screens that do not allow the bulb to shine up or out. All proposed lighting shall be located to avoid light pollution onto any adjacent lands as viewed from a distance. All lighting fixtures shall be hooded and shielded, face downward, located within soffits and directed on to the pertinent site only, and away from adjacent parcels or areas.</p> <p>A lighting plan should be submitted indicating the types of lighting and fixtures, the locations of fixtures, lumens of lighting, and the areas illuminated by the lighting plan.</p> <p>Any required FAA lighting is exempt from this condition, but should be consolidated and minimized wherever possible.</p>	As site-specific projects are proposed, “Dark Sky” lighting practices will be considered through the NEPA process and site-specific impacts will be analyzed when a geothermal project is proposed.
9-6	Utilize building materials, colors and site placement that are compatible with the natural environment:	Plans and policies would be developed for future NEPA analysis of project level development.
9-7	Utilize consistent mitigation measures that address logical placement of improvements and use of appropriate screening and structure colors. Existing utility corridors, roads and areas of disturbed land should be utilized wherever possible. Proliferation of new roads should be avoided.	Plans and policies would be developed for future NEPA analysis of project level development.

Comment Code	Comment	Response to Comment
9-8	For example, the use of compatible paint colors on structures reduces the visual impacts of the built environment. Using screening, careful site placement, and cognitive use of earth-tone colors/materials that match the environment improve the user experience for others who might have different values than what is fostered by built environment activities.	Site-specific impacts will be analyzed when a geothermal project is proposed.
9-9	Federal agencies should require these mitigation measures as conditions of approval for all permanent and temporary applications.	Site-specific impacts will be analyzed when a geothermal project is proposed.
10-1	The maps that are part of the proposed geothermal leasing (E2012-098 DEIS - Geothermal Leasing on the Humboldt-Toiyabe National Forest - US Forest Service) have been reviewed for conflicts with existing or proposed Material Site Right of Way (or access roads). I find no conflicts and support development of USFS administered lands.	Comment noted.
11-1	All waters of the State belong to the public and may be appropriated for beneficial use pursuant to the provisions under Chapters 533 and 534 of the Nevada Revised Statutes (NRS), and not otherwise. Any water developments constructed and utilized for a beneficial use whether surface or underground must be done so in compliance with the referenced Chapters of the NRS.	Site-specific impacts will be analyzed when a geothermal project is proposed and would follow federal, state and local laws and regulations.
11-2	All exploration boreholes must be plugged and abandoned according the Nevada Administrative Code Chapter 534.	site-specific impacts will be analyzed when a geothermal project is proposed and would follow federal, state and local laws and regulations.
11-3	An OG waiver must be obtained from the Nevada Division of Water Resources before water can be used for drilling of exploration wells.	site-specific impacts will be analyzed when a geothermal project is proposed and would follow federal, state and local laws and regulations.
12-1	Letter #12 is a supplement to to submittal #8.	See responses to comment 8.
13-1	I am in support of Alternative 2, which would protect sage grouse habitat. I think you took appropriate measures to protect sage grouse and support you in consenting to leasing of the areas to the BLM under those	Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.

Comment Code	Comment	Response to Comment
	conditions.	
14-1	We support Alternative #2 entitled "The Proposed Action with Enhanced Stipulations for Sage Grouse and Traditional Cultural Properties." We are well aware of the impending potential listing of the Bi-state and rangewide populations of the Greater sage grouse, and we understand the need for the stipulations as identified in that draft alternative. We strongly encourage the Humboldt Toiyabe National Forest to be diligent in your efforts to help preclude a listing of this iconic bird in all of your management and decision processess.	Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
15-1	Any geothermal project, obviously subject to further official comment by Tribal Councils, must not interfere with our People's traditional use of historic sacred, surface waters (hot, warm or cold) for ceremonial purposes, and on the environmental side, not pollute those sacred sites.	Consultation will be completed for any proposed undertaking.
15-2	I have been to the hot springs, which you refer to as "Travertine". I assume you know that is a historic, sacred, site, and that there are several traditional forms of food and medicine growing and existing there.	Cultural resource surveys would be conducted for project-specific analysis. Tribal consultation relating to traditional and cultural sites will also be conducted for any proposed projects in these areas. Refer to stipulations for cultural resource protection.
15-3	It personally disturbed me to see the sacred, historic water and land immediately adjacent the water being polluted: cigarette butts left in the water pools; graffiti in algae and other life forms and on rocks; dog feces (at least I hope it was dog--it was not coyote); etc. I do not know the extent by which the pollution contaminates our traditional foods and medicine but such acts cause me, individually, to reconsider using valuable traditional foods and medicine that are there.	Tribes would be consulted prior to any future proposed projects that include ground disturbance to ensure traditional, cultural, or sacred sites are identified. Travertine Hot Springs is not in the project area. This comment has been forwarded to the California BLM.
16-1	CD submitted with appeal, associated with Comment #12 from same group.	Information submitted has been reviewed, considered, and, where appropriate, incorporated into the analysis.

Comment Code	Comment	Response to Comment
17-1	I support the Geothermal project in general, however I recommend not leasing in the Ely Decision Area. Because, I. it is a roadless area.	The lease stipulation that states "no road construction would be allowed in IRAs" is sufficient for protection of IRAs.
17-2	There are many Indian artifacts in this decision area.	With site-specific proposals, on-the-ground Class-III surveys and additional NEPA analysis would reveal cultural sites and artifacts, which are protected through avoidance stipulations or other mitigation.
17-3	The possibility of changing the water flow for the Preston Area, White Ranch, and our Hot Spring Water.	Resources impacts related to these issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
17-4	I definitely oppose this leasing of the Ely Decision Area. I will seriously consider legal action if my water supply at the Hot Springs or water for irrigation is affected.	Resources impacts related to these issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
18-1	I am not in favor of having the geothermal project in the Ely area because I am afraid it will have adverse effects on our farm irrigation and will cause our hay crops and fields to dry up. Farming and Ranching is our livelihood and we could lose our water supply.	Resources impacts related to these issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
18-2	The area is a roadless area.	The lease stipulation that states "no road construction would be allowed in IRAs" is sufficient for protection of IRAs.
18-3	[the area] also contains many tribal artifacts.	With site-specific proposals, on-the-ground Class-III surveys and additional NEPA analysis would reveal cultural sites and artifacts, which are protected through avoidance stipulations or other mitigation.
18-4	I am definitely opposed to this plan for the Ely area- I could support the Geothermal Project if it did not have negative results for people who are trying to make a living needing land and water.	Comment noted
19-1	The Center has previously submitted scoping comments for this project in a letter to you dated May 25, 2011 and we incorporate those comments by this reference.	Comment noted.
19-2	We strongly supports the development of renewable energy production. However, like any project, proposed geothermal power projects should be thoughtfully	Stipulations and notices would be attached to leases and they would address these concerns.

Comment Code	Comment	Response to Comment
	<p>planned to minimize impacts on the environment.</p> <p>In particular, renewable energy projects should avoid impacts on sensitive species and habitat, and should be sited in proximity to the areas of electricity end-use in order to reduce the need for extensive new transmission corridors and the efficiency loss associated with extended energy transmission.</p>	
19-3	<p>The Center and Project strongly supports Alternative 2 (with modifications outlined below) of the DEIS. We believe that Alternative 1 is non-responsive to the unique stewardship responsibilities and land ethics faced by the Forest Service (“agency”) on the lands being considered for consent to lease, in particular the imperiled populations of Bi-State and greater imperiled sage grouse. Alternative 3, while being the least impactful, does not provide affirmative action to address the perils from greenhouse gas emissions and the catastrophic effects of resulting climate change.</p>	<p>Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.</p>
19-4	<p>While strongly supporting Alternative 2, we offer the following issues and concerns for your consideration in preparing a final EIS and record of decision.</p> <p>Both the Bi-state and greater populations of sage grouse were found to be warranted for listing under the ESA.^{^1} As part of the finding, the bi-state population was assigned a listing priority of 3, which signifies the species faces a high magnitude of imminent threats. Threats disclosed in the finding included: energy development, mining, grazing, invasive species, off road vehicle use, habitat fragmentation, wildfire, urbanization and climate changes. Additionally, the current regulatory mechanisms were found inadequate to address the threats. Since the grouse occurs in low numbers and isolated populations, they are at increased risk from stochastic events such as</p>	<p>Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.</p>

Comment Code	Comment	Response to Comment
	<p>disease epidemics, fire and other environmental catastrophes. The finding held that: The combination of factors that pose threats and the limited potential to recover from population declines or extirpations results in a high risk of extirpation of populations of the greater sage-grouse in four of the six population management units over the next 30 years.</p> <p>For this reason, we are particularly concerned with the impacts of a consent to lease on the Bi-state population. We recommend that all Category 1 and 2 habitat areas for the Bi-state population not be included in the consent for lease.</p>	
19-5	<p>For the lands providing habitat for the greater population of sage grouse, we appreciate the agency's adoption of the, Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage Grouse Populations and Their Habitats (Energy Standards).⁴</p> <p>Doing so is a large step in addressing our concerns.</p>	<p>Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.</p>
19-6	<p>In the DEIS, the agency states that for Alternative 2, prohibit surface occupancy and surface-disturbing activities within field verified active sage grouse nesting and active early brood-rearing habitat, if it falls outside the 3 mile radius from a lek. Our scoping comments called for eliminating areas categorized by the Nevada Department of Wildlife (NDOW) as category 1 or 2 areas for sage grouse. It is the Center's interpretation that these two provisions are the same but if not, our call for excluding all Category 1 and 2 areas remains. Of particular concern are protections for crucial sage grouse winter range habitat which is included in the Energy Standards, but not mentioned in the DEIS.</p>	<p>Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.</p>
19-7	<p>Also, the Energy Standards call for, No development should occur within a 0.6 mile (1 km) radius around</p>	<p>The 300 to 500 foot buffer to protect aquatic features and LCT was developed to address aquatic resource concerns.</p>

Comment Code	Comment	Response to Comment
	seeps, springs and wet meadows within identified brood rearing habitats. Appendix A envisions a 300-500 foot buffer to protect aquatic features and Lahontan cutthroat trout, but there is no connection made between springs and wet meadows and sage grouse needs, and the envision buffers are smaller than called for in the Energy Standards.	Additional stipulations were developed to address sage-grouse concerns.
19-8	While the timing restrictions found in the Energy Standards is mentioned in the description of Alternative 2, it is not explicitly stated in DEIS Appendix A, but should be in future drafts.	Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
19-9	Further, we are concerned that the agency's stipulations in the consent to lease include the need for further inventory, including lek detection surveys, prior to the approval of further leasing steps.	Surveys would be required prior to future development, but after leasing and submission of project proposals.
19-10	We also request that the agency strengthen its stipulations found in Appendix A of the DEIS by including the most currently available science and best management practices found in the National Sage Grouse Technical Team 's December 2011 report	Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
19-11	While we appreciate the recognition given to Inventoried Roadless Areas (IRAs) in Appendix A we are concerned that some special areas within IRAs are not adequately protected. Specifically we are concerned about the Wovoka, Excelsior, and Huntoon areas, which have previously been found to be of Wilderness quality and/or appear in citizen-proposed Wilderness initiatives. To preserve the decision space by the agency to recommend these areas to Congress for formal Wilderness designation, they should be excluded from the consent to lease area.	The lease stipulation that states "no road construction would be allowed in IRAs" is sufficient for protection of IRAs.
19-12	While the DEIS does disclose the potential impacts on surface and ground water resources in a generic manner, there is little analysis of specific impacts nor the presentation of stipulations to protect aquatic features.	The project is for leasing and the environmental consequences are appropriate for the scale of the project. Site-specific impacts would be conducted when a geothermal project is proposed.

Comment Code	Comment	Response to Comment
	For instance, the DEIS does disclose that the Darrough's hot spring is .8 miles from the Tonopah decision area, but makes not analysis of impacts or how such impacts would be avoided, minimized or mitigated.	
19-13	Appendix A does provide some stipulations to protect riparian and wetland habitat and specifically Lahontan cutthroat trout habitat, but they merely assume that a buffer zone will address any impacts without any basis provided for this conclusion.	Future environmental review of proposed site-specific exploration and development would identify effects on aquatic resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting aquatic resources. These buffers were meant to prevent ground disturbing activities from occurring in riparian areas. Future analysis would need to be completed to account for the effects of geothermal activities themselves on a site-specific basis.
19-14	<p>Further, discussion of the impacts on ground water resources is almost completely lacking. Considering that the mechanics of geothermal development inherently involve physical features below ground, there is a high degree of certainty that ground water resources will be impacted to some degree. These ground water features are often directly associated with springs and streams, some of which that provide habitat to rare and imperiled species, or unique recreational opportunities.</p> <p>The agency must ensure that adequate protective stipulations are developed and included in any final decision.</p>	There are no impacts on surface and ground water from leasing. Impacts will be assessed when a proposed action and alternatives are submitted for a specific project that is spatially and temporally defined sufficient to conduct an effects analysis. Future environmental review of proposed site-specific exploration and development would identify effects on aquatic resources and compliance with applicable laws and regulations. Where necessary, it would also identify methods for protecting aquatic resources
19-15	Appendix A has a stipulation that there would be no surface occupancy on lands with slopes greater than 40%. No justification is provided why this great of slope is acceptable and the Center requests it be carefully examined. Standards for logging often set the upper slope for ground-based equipment at 30%.	Comment noted.
19-16	In closing, we hope that you will find these comments useful in your preparation of a final EIS and record of decision. We urge you to proceed ahead carefully and	Information submitted has been reviewed, considered, and, where appropriate, incorporated into the analysis.

Comment Code	Comment	Response to Comment
	deliberatively. We wish to remain engaged in the process and request that we remain on any notification or mailing lists.	
20-1	General: The document contains references to USGS documents that are incorrect. Several specific incorrect references are listed below; however, we suggest the authors conduct a review of the references cited to insure that the correct references are included in both the text and the list of references.	References have been reviewed and corrected through out Chapter 3 Section 3.9. References have been revised for Section 3.9 in Chapter 7 as well.
20-2	Pg. 3-28: The document contains several statements that describe the regional groundwater system, and references USGS, 2002 as the source. The USGS, 2002 reference provided in the list of references (Chapter 7) is a reference to a collection of statistical tools used by the USGS for water analysis. We suggest that the correct USGS, 2002 reference be provided.	Reference was removed and replaced with two other references. These have been added in Chapter 3 Section 3.9 and Chapter 7.
20-3	Pg. 3-34: The document contains several statements that describe the surface water system, and references USGS, 2004f as the source. The list of references (Chapter 7) does not include a USGS, 2004f reference, and the only USGS, 2004 reference listed does not appear to be the correct reference; the link provided does not access a web page. We suggest that the correct reference be provided.	Reference is to Geological Provinces of the United States, Basin and Range Province: Great Basin < http://www.nature.nps.gov/geology/usgsnps/province/bgrbrba.s.html > Last updated 10/10/2000 This has been corrected in Chapter 3 under Section 3.9 and added in Chapter 7
21-1	We support alternative I: Proposed Action, as described in the DEIS and have the following comments and concerns on the document:	Comment noted
21-2	Note that according to the actual location of the two leks in the vicinity of the Ely Geothermal Decision Area, the calculation for NSO acres in the document is significantly greater than the actual area. In delineating a 3-mile radius from actual locations of the two leks, the NSO area would encompass approximately 2,070 acres of that decision area, as opposed to the 3,300 acres described throughout the document.	Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.

Comment Code	Comment	Response to Comment
21-3	Page 3-23. There is no discussion on the Potential Fossil Yield Classification as presented in the Geothermal PEIS (2008). The potential for discovery is discussed on page 5-10, paragraph 3, but there is no definition that explains low and moderate potential.	Summary definitions have been added to Section 3.7.
21-4	Page 3-23. Paragraph 6, Lines 1-2. It should be mentioned that there are no known fossiliferous formations in the Tertiary and Quaternary deposits that are within the Ely Geothermal Decision Area.	Text has been revised as suggested.
21-5	Page 3-35, Paragraph 9, Line 1. The Ely Geothermal Decision Area is located in the White River Valley Hydrologic Unit, not the White Hydrologic Unit.	Text has been revised.
21-6	Page 3-70, Paragraph 7, Line 1. This section describes life requirements, occurrence, and range distribution for species occurring within all four decision areas. However, it states that sage grouse leks in this area are located above 8,800 feet in elevation. This statement is presumably in reference to the Bridgeport Decision Area.	Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
21-7	Page 3-93. This section should acknowledge that the Class I reiew for the Ely Geothermal Decision Area did not identify any cultural resources. Also, no cultural inventories have ever been conducted in the Ely Geothermal Decisions Area. A reference to the Geothermal PEIS (2008), Appendix D, D-4, that stipulates that pedestrian surveys would only be conducted before specific permits are issued, would help clarify when Class III inventory survey would be conducted.	Text has been revised.
21-8	Page 5-10, Paragraph 5. A reference to the Best Management Practices (BMPs) in the Geothermal PEIS (2008), Appendix D, page D-5 should be included here, as that document has specific BMPs for paleontological resources.	Text has been revised.
21-9	Appendix A, Page A-6, Paragraph 3, Line 1. Within the PEIS, there is no stipulated distance for 'no surface occupancy,' however the 200-foot buffer around a	No TCP's or sacred sites have yet to be identified by tribes. Any proposed projects within the leasing area would require tribal consultation to identify effects to TCP's or sacred

Comment Code	Comment	Response to Comment
	Traditional Cultural Property seems appropriate. To date, the tribes have identified no TCPs or sacred sites within the Ely Geothermal Decision Area.	sites.
21-10	Appendix A, Page A-8, Section D. Neither of the two citations in this section is included in Section 7, References. The citation '2010' is incomplete and although seemingly in reference to the text immediately prior to citation, "NDOW energy guidelines,' there is no such NDOW reference in Section 7. The citation '(Section B.2)' is incomplete and it is unclear to which document or section of this document it refers. Presumably, both citations refer to the document 'Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage-Grouse Populations and Their Habitats,' authored by the Nevada Governor's Sage-Grouse Conservation Team, April 2010. If so, include this reference in Section 7 and correct the citations accordingly.	Reference has been clarified in Appendix A text and added to references in Chapter 7.
22-1	NDOW commends the Humboldt-Toiyabe for including regulatory mechanisms to protect sage-grouse habitat under alternative 2 which is our preferred alternative. However, we recommend incorporating the following additional measures to ensure the bi-state sage-grouse habitat is adequately protected. These additional measures will provide sage-grouse with the ability to move and satisfy all their lifecycle requirements.	Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
22-2	Since our May 31, 2011 letter, NDOW has completed the Habitat Categorization Map (attached) for Bridgeport Ranger district. We recommend modifying the EIS to include protecting (i.e. no surface occupancy) habitat categories 1-3. Additionally, movement corridors outside categories 1-3 and areas within 4 miles of an active lek should have No Surface Occupancy stipulations. Research suggests that protecting and restricting surface disturbing activities within 4 miles of the lek is adequate for	Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.

Comment Code	Comment	Response to Comment
	protecting at least 80% of nesting habitat (Petersen 1980; Autenrieth 1981; Giesen 1995; Graham and McConnell 2004; Graham and Jones 2005; Hollaran 2005; Thompson et al. 2005; Thompson 2006; Moynahan and Lindberg 2006; Tack 2009; Hagen 2011).	
22-3	Furthermore, timing restrictions within important sage grouse habitat areas (i.e. within 4 miles of a lek, movement corridors and habitat categories 1-3) should occur for geothermal associated activities (e.g. transportation).	Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
22-4	Lastly, the status of unknown leks should be determined prior to permitting exploration activities within 4 miles of leks with unknown status.	Comment noted. In addition, an additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
23-1	While renewable energy facilities offer many environmental benefits, they are not without the potential for adverse impacts. Appropriate siting and design of such facilities is of paramount importance if the nation is to make optimum use of its renewable energy resources without unnecessarily depleting or degrading its water resources, wildlife habitats, recreational opportunities, and scenic vistas.	Resource impacts related to these issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
23-2	We have rated all alternatives in the DEIS as Environmental Concerns — Insufficient Information (EC-2) (see enclosed “Summary of EPA Rating Definitions”). The EPA recommends the Final EIS include additional analysis, and, as appropriate, mitigation measures for the potential impacts on water resources and air quality. Additionally, we recommend the FEIS include detailed procedures for further NEPA analysis of subsequent site-specific projects, including analysis of, and mitigation for, climate change impacts. Our enclosed detailed comments provide additional information regarding these concerns and recommendations.	Resource impacts related to these issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.

Comment Code	Comment	Response to Comment
23-3	<p>The 1996 amendments to the Safe Drinking Water Act require federal agencies to protect sources of drinking water for communities. The Draft Environmental Impact Statement states that potential impacts from geothermal resource development to either surface water or groundwater would be reduced through site-specific analysis and development of mitigation or protection measures for future projects as well as implementation of Best Management Practices. In addition, implementation of the stipulations outlined in Appendix A would reduce impacts on water resources (p. 4 -32). The DEIS does not discuss whether or not any source waters are located within the leasing area. Without this information, EPA is unable to fully assess the potential environmental impacts of the project and the adequacy of any mitigation measures to protect such waters.</p> <p>Recommendation:</p> <p>The Final EIS should identify:</p> <ol style="list-style-type: none"> 1. Any source water protection areas within the leasing areas. 2. All activities that could potentially affect source water areas. 3. Potential contaminants that may result from the expected exploration and geothermal development that could impact source water protection areas. 4. Measures that would be taken to protect the source water protection areas. 	<p>The Bridgeport District is outside of any direct source, but Walker River provides downstream water from wells. Potential impacts would be identified on a site-sepcific level when a geothermal project is proposed. The Ely District is outside of any direct source but immediately adjacent to Ellison Creek and White River which provides downstream water Lund and Preston and to ranches. It is also adjacent and upgradient from warm and cold springs used by local ranches, Lund and Preston.</p>

Comment Code	Comment	Response to Comment
23-4	<p>Details regarding site-specific projects are not included in the DEIS as no geothermal leases or specific projects have been proposed to date. At various sections in Chapter 4, it is stated that subsequent site-specific proposals or projects would undergo National Environmental Policy Act review, though details are lacking. The DEIS does not describe the process that would be used to determine the level of subsequent NEPA analysis, nor does it identify the mechanism, screening criteria, or thresholds that would be used to make these determinations. Recommendations: The FEIS should clarify in Section I.8, Scope of Analysis, that all lease stipulations and Best Management Practices from the 2008 Geothermal PEIS still apply. Further, the FEIS should clarify that any subsequent site-specific geothermal exploration or development projects would require further environmental analysis, which could be conducted through either an environmental assessment or an EIS that could tier to the subject FEIS and the 2008 Geothermal PEIS. The FS and BLM should elaborate on the process that individual offices will use to determine whether an EA or EIS will be prepared for subsequent projects, and identify the mechanism, screening criteria, and/or thresholds that would be used to make these decisions. We recommend that consistent standards for determining the appropriate level of NEPA review for individual projects be identified and implemented to ensure that all impacts are consistently identified and disclosed to decision-makers.</p>	Text has been revised to address this comment.
23-5	<p>The California Renewable Energy Action Team, as part of its Desert Renewable Energy Conservation Plan development process has also developed BMPs for low impact renewable energy development on desert lands, as well as specific BMPs for geothermal projects 2. Additionally the International Energy Agency has</p>	Section I.8 has been revised to address this comment.

Comment Code	Comment	Response to Comment
	<p>produced a handbook on the best practices for geothermal drilling.</p> <p>Recommendation:</p> <p>The FEIS should include the Renewable Energy Action Team Desert Renewable Energy Projects BMPs and the International Energy Agency Handbook of Best Practices for Geothermal Drilling as sources of BMPs that could be incorporated, as appropriate, into new leases, associated permits and Conditions of Approval.</p>	
23-6	<p>Many of the proposed activities that would follow from the leasing decision would result in vegetation being cleared and soils moved during the construction of roads, well pads, pipelines, transmission lines, substations, power plants and other facilities. Such activities could adversely affect raptors or their habitats, which are known to occur in the vicinity of the decision area (p. 3-51). All raptor and owl species are protected under the Migratory Bird Treaty Act. The golden eagle and bald eagle also receive protection under the Bald and Golden Eagle Protection Act. In September 2009, the U.S. Fish and Wildlife Service finalized permit regulations under the BGEPA for the take of bald and golden eagles on a limited basis, provided that the take is compatible with preservation of the eagle and cannot be practicably avoided. The final rule states that if advanced conservation practices can be developed to significantly reduce take, the operator of a facility may qualify for a programmatic take permit. Most permits under the new regulations would authorize disturbance, rather than take. Projects or activities that could impact golden or bald eagles may require the preparation of an Eagle Conservation Plan. The BLM has recently issued Greater Sage-Grouse Conservation Guidance in the form</p>	<p>Comment noted. General impacts on wildlife from geothermal exploration or development have been analyzed in Chapter 4 and additional analysis would be conducted on a site-specific level when a geothermal project is proposed.</p>

Comment Code	Comment	Response to Comment
	<p>of two Instructional Memoranda (TM No. 20 12-043 and IM No. 20 12-044) that are designed to guide both immediate and longer-term conservation actions aimed at conserving the greater sage-grouse and its sagebrush habitat in 10 western states, including Nevada. Recommendations: Work with the U.S. Fish and Wildlife Service to ensure that requirements regarding the protection of eagles and other raptors are appropriately addressed in the FEIS. Consider incorporating appropriate actions and management strategies included in the BLM's Greater Sage Grouse IMs into the FEIS as measures to be applied to all site-specific projects resulting from the leasing decision.</p>	
23-7	<p>Emissions of carbon dioxide and other heat-trapping gases are affecting weather patterns, sea level, ocean acidification, chemical reaction rates, and precipitation rates, resulting in climate change. One report predicts that, by 2100, the average temperatures for Nevada are expected to increase by 3-4° F in the spring and fall and by 5-6° F in the summer and winter 4. In general, Nevada is expected to have wetter winters and more arid summers as the subtropical dry zones for the whole planet are projected to increase. Higher temperatures and increased winter rainfall will be accompanied by a reduction in snow pack, earlier snowmelts, and increased runoff. 5 The DEIS includes a good discussion of the projected impacts of climate change on the area being considered for leasing (p. 3-110). Some of the predictions, such as reduced groundwater discharge, and more frequent and severe drought conditions, may impact subsequent site-specific projects. Recommendations: The FEIS should discuss the potential impact of climate change on the effectiveness of proposed BMPs, lease stipulations and mitigation measures. The NEPA analysis for each subsequent site-specific project should discuss the</p>	<p>Text will be revised in accordance with the CEQ, which has directed agencies to develop guidance for how to address climate change in their NEPA documents. Revision will include discussion on the effectiveness of BMPs, mitigations, etc., given the impact of climate change on potentially affected resources such as air quality, water, and biological resources. In addition, future site-specific NEPA analysis should include a discussion of climate change impacts, as by definition a NEPA analysis must discuss potential impacts. .</p>

Comment Code	Comment	Response to Comment
	<p>potential impact of climate change on that project, and incorporate mitigation measures, as appropriate.</p> <p>The NEPA analyses for subsequent site-specific projects should also assess how the projected impacts of each individual project could be exacerbated by climate change.</p>	
23-8	<p>The DEIS describes the ambient air quality but does not estimate air emissions from the anticipated operations or facilities. The DEIS states that the nature and extent of geothermal-related development activities that would affect air quality would vary by project, depending on several factors: 1) whether the project is for direct use or indirect use; 2) the size of the project; and 3) for indirect projects, which type of power plant technology is used. Potential air quality impacts would be evaluated on a project-specific basis, as NEPA would be conducted for each of the potential phases of geothermal development activity: exploration, drilling operations, utilization, and reclamation and abandonment. Air permits would also be obtained, as necessary, for each individual phase, and activities at all sites would need to be carried out in conformance with the applicable state implementation plans (p. 4-35). The leasing stage presents an ideal opportunity to disclose and analyze the potential impacts from past and future resource development in the project area and nearby vicinity. We note the DEIS includes a reasonably foreseeable development scenario which estimated a range of future production and exploration wells (p. 2-14). Despite the inclusion of this RFD, an emissions inventory was not prepared. While the area proposed for development is currently in attainment for all NAAQS, an emissions inventory at this stage will help inform the expected geothermal project-level analyses as well as a cumulative impacts analysis for projects in the area. Recommendations: Quantify, for each alternative in the FEIS, emissions of criteria pollutants and volatile</p>	<p>The impact analysis methodology of the Humboldt-Toiyabe Leasing EIS followed that of the Geothermal PEIS, where the types of air emissions and their sources were described, without quantifying potential emissions. Calculations for well drilling have been developed and included in the document. In addition, a more of a qualitative discussion about construction emissions have been included as well as more detail about construction emission mitigation. The text was also revised to clarify that more specific emissions would be quantified in the site-specific NEPA analysis required for each stage of geothermal exploration and development. More qualitative information on potential impacts on Class I and sensitive Class II have been added where appropriate.</p>

Comment Code	Comment	Response to Comment
	<p>organic compounds based on the number of reasonably foreseeable production and exploration wells.</p> <p>Discuss, for each alternative, impacts on air quality related values for each Class I area, and sensitive Class II areas, as well as non-attainment areas in proximity to the project area. The EPA recommends the FEIS include the following measures, as requirements for future projects, to reduce emissions of criteria air pollutants and hazardous air pollutants (air toxics). Construction Emissions Mitigation Plan The FEIS should include a firm commitment to a Construction Emissions Mitigation Plan for any future projects in the decision area. In addition to all applicable local, state, or federal requirements, the EPA recommends that the following mitigation measures be included in the Construction Emissions Mitigation Plan in order to reduce impacts associated with emissions of particulate matter and other toxics from construction-related activities:</p> <p>Fugitive Dust Source Controls: Identify the need for a Fugitive Dust Control Plan.</p> <p>We recommend that the plan include these general commitments:</p> <ul style="list-style-type: none"> Stabilize heavily used unpaved construction roads with a non-toxic soil stabilizer or soil weighting agent that will not result in loss of vegetation, or increase other environmental impacts. During grading, use water, as necessary, on disturbed areas in construction sites to control visible plumes. Vehicle Speed Limit speeds to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions. Limit speeds to 10 miles per hour or less on unpaved areas within construction sites on unstabilized (and unpaved) roads. Post visible speed limit signs at construction site entrances. Inspect and wash construction equipment vehicle tires, as necessary, so they are free of dirt before entering paved roadways, if applicable. Provide gravel ramps of at least 20 feet in length at tire washing/cleaning 	

Comment Code	Comment	Response to Comment
	<p>stations, and ensure construction vehicles exit construction sites through treated entrance roadways, unless an alternative route has been approved by appropriate lead agencies, if applicable.</p> <ul style="list-style-type: none"> o Use sandbags or equivalent effective measures to prevent run-off to roadways in construction areas adjacent to paved roadways. Ensure consistency with the project's Storm Water Pollution Prevention Plan, if such a plan is required for the project. o Sweep the first 500 feet of paved roads exiting construction sites, other unpaved roads en route from the construction site, or construction staging areas whenever dirt or runoff from construction activity is visible on paved roads, or at least twice daily (less during periods of precipitation). o Stabilize disturbed soils (after active construction activities are completed) with a non-toxic soil stabilizer, soil weighting agent, or other approved soil stabilizing method. o Cover or treat soil storage piles with appropriate dust suppressant compounds and disturbed areas that remain inactive for longer than 10 days. Provide vehicles (used to transport solid bulk material on public roadways and that have potential to cause visible emissions) with covers. Alternatively, sufficiently wet and load materials onto the trucks in a manner to provide at least one foot of freeboard. o Use wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) where soils are disturbed in construction, access and maintenance routes, and materials stock pile areas. Keep related windbreaks in place until the soil is stabilized or permanently covered with vegetation. <p>Administrative controls:</p> <ul style="list-style-type: none"> o Develop a construction traffic and parking management plan that maintains traffic flow and plan construction to minimize vehicle trips. o Identify any sensitive receptors in the project area, such as children, elderly, and the infirm, and 	

Comment Code	Comment	Response to Comment
	<p>specify the means by which impacts on these populations will be minimized (e.g. locate construction equipment and staging zones away from sensitive receptors and building air intakes). O Include provisions for monitoring fugitive dust in the fugitive dust control plan and initiate increased mitigation measures to abate any visible dust plumes.</p>	
23-9	<p>The 2008 Geothermal PEIS provides a list of hazardous materials routinely found at geothermal plants. In particular, binary plants typically use a flammable organic compound as the working fluid for the power plants. Hydrogen sulfide is a potential toxic gaseous pollutant that could be released during drilling, maintenance or as the result of an accident. The geothermal power plants will have to comply with CAA § 112(r), and, as applicable, EPCRA § 303, 311, & 312, and the Nevada Chemical Accident Prevention Program. Additionally, since the establishment of the Emergency Planning and Community Right-to-Know Act in 1986, the county's Local Emergency Planning Committee can require a facility to produce an emergency response plan whether or not it is required under other regulations. Nevada's LEPCs are currently set up at the county level. Recommendation: The FEIS should discuss compliance with CAA § 112(r), EPCRA § 303, 311, & 312 and the Nevada Chemical Accident Prevention Program, as applicable.</p>	<p>More qualitative information on potential impacts on Class I and sensitive Class II areas have been added where appropriate. Text has been revised to state that a Construction Emissions Mitigation Plan will be required and that it will include a fugitive dust control plan that includes fugitive dust controls listed in the EPA letter. The text has also been revised to include the administrative controls suggested to Chapter 2. Finally, text was revised to say that plants must comply with CAA Section 112r and described what this means.</p>
24-1	<p>We typically have minor recommendations on proposed geothermal facilities. Appropriate siting of these facilities is the most important factor in minimizing biological conflicts. The proposed action in Bridgeport, Austin, and Ely Decision areas will likely pose challenges to greater sage-grouse (<i>Centrocercus urophasianus</i>) conservation. Our assessment of the Austin Decision Area was in the context of the recently approved McGuinness Hilss Geothermal Project adjacent to these proposed parcels.</p>	<p>Comment noted.</p>

Comment Code	Comment	Response to Comment
24-2	<p>The greater sage-grouse and the Bi-State DPS of the greater sage-grouse have been placed on the candidate list for future action, meaning the species and the DPS do not receive statutory protection under the ESA, and States continue to be responsible for managing the species. In the status review, fragmentation of contiguous sagebrush habitats and of sage-grouse populations combined with inadequate existing regulatory mechanisms to prevent this fragmentation was the principle rationale for our listing decision. As regional collections of populations (ie metapopulations) become further isolated from one another due to natural and anthropogenic impacts, the extent or distribution of these regional metapopulations will play a significant role in their persistence and ultimately our ability to revoer the species should that become necessary. Because candidate species often have a period of time during which a listing action can be averted, we encourage a proactive and conservation-minded approach to activities that may have detrimental impact on the species.</p>	<p>Comment noted. An additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.</p>
24-3	<p>The proposed project boundaries associated with the Bridgeport, Austin, and to a lesser degree,Ely Decision Areas each occur in relatively high population density sites for the greater sagegrouseor the Bi-State DPS of the greater sage-grouse and the proposed action may have adetrimental effect on their long-term sustainability in these areas. We recognize the DEIS doesnot represent an irretrievable commitment of resources but consider the uncel.tainty it presents tofuture development scenarios a consideration pertinent to our upcoming listing decisions.Assuming sites are developed, we anticipate that potential impacts will occur from direct habitatloss, habitat fragmentation through roads and power lines, noise, and increased human presence,shifts in the predator community [increasing abundance of common</p>	<p>Comment noted. An additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.</p>

Comment Code	Comment	Response to Comment
	<p>ravens (<i>Corvus corax</i>)], and the spread of invasive species. Given our knowledge of the greater sage-grouse in these areas, we expect that there will be reductions and possibly a complete loss in local population numbers due to the commensurate habitat degradation resulting from construction and operation of geothermal facilities. This loss or reduction in the populations will likely not be immediately obvious due to site fidelity of adult birds. Indirect impacts will further expand the actual impact area beyond the facilities. We recommend that until such time general agreement among stakeholders in Nevada can be reached as to the location and extent of essential and irreplaceable greater sage-grouse habitat, deference toward conservation of these habitats be afforded for the long-term benefit of this species.</p>	
25-1	<p>Many of our members who live near or recreate on National Forest lands in the Bridgeport, Austin, Tonopah, and Ely areas are concerned about the potential direct, indirect, and cumulative impacts of the geothermal projects analyzed in the DEIS, particularly impacts on the Bi-State population of Greater Sage Grouse which occupy forest lands in the Bridgeport District, on roadless areas</p>	<p>Comment noted. An additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.</p>
25-2	<p>Many of our members who live near or recreate on National Forest lands in the Bridgeport, Austin, Tonopah, and Ely areas are concerned about the potential direct, indirect, and cumulative impacts of the geothermal projects analyzed in the DEIS, particularly impacts on the Bi-State population of Greater Sage Grouse which occupy forest lands in the Bridgeport District, on springs</p>	<p>Comment noted. An additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.</p>
25-3	<p>Many of our members who live near or recreate on National Forest lands in the Bridgeport, Austin, Tonopah, and Ely areas are concerned about the potential direct, indirect, and cumulative impacts of the geothermal projects analyzed in the DEIS, particularly impacts on the Bi-State population of Greater Sage Grouse which occupy</p>	<p>Comment noted. An additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.</p>

Comment Code	Comment	Response to Comment
	forest lands in the Bridgeport District, on water-dependent species.	
25-4	Unfortunately, we do not find this level of national concern reflected in this DEIS as the Bi-State Sage Grouse population or its dependence on National Forest lands in the Bridgeport District is not mentioned in the document. While some existing information on Sage Grouse is included in the DEIS, we did not find references to or incorporation of the Bi-State PMU plan specifically developed for the subpopulation, including in the Bridgeport Ranger District or conservation measures included in the national Sage Grouse initiatives.	Comment noted. An additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
25-5	Alternative 2, the Proposed Action (in which the USFS would consent to the leasing of over 600,000 acres of National Forest lands in the Bridgeport District) with Enhanced Stipulation for Sage Grouse, contains a few stipulations for greater protection of the Bi-State population and its core habitat in the Bridgeport District. While we certainly support what stipulations are mentioned in the DEIS and Appendix A, we find no documentation or support that these are adequate to actually protect the endemic subpopulation or meet national strategy goals and objectives. Nor do the DEIS stipulations include many of the specific protection measures included in BLM's Instruction Memorandum # 2012-044 and the National Sage-Grouse Technical Team Report on National Greater Sage-Grouse Conservation Measures, published on December 21 2011 (National Technical Team Measures).	Comment noted. An additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
25-6	Instead, we found that the USFS rejected an alternative (p. 2-10) which would have provided for Non-consent Areas for Sage Grouse for limited protection. The rationale for rejecting this alternative - the impermanence of leks and breeding areas - only points out the critical importance of USFS actions to identify and conserve	Comment noted. In order to address the most recent sage-grouse guidance an additional alternative has been added to the EIS.

Comment Code	Comment	Response to Comment
	every existing lek, breeding area and wintering ground for the Bi-State population in the Bridgeport District, which may be lost due to wildfires, weed invasions and man-made habitat disturbances, including energy development and infrastructure.	
25-7	We strongly urge the USFS to not select the Proposed Action which allows the destruction of core Sage Grouse habitat areas. Instead, we urge the USFS to include the greater protections for Sage Grouse in Alternative 2 enhanced by the best available science. Specifically, the USFS should incorporate into Alternative 2 the protections included in the Bi-State PMU action plan update and the National Technical Team Measures as well as all other site-specific measures developed as more information becomes available on Bi-State Sage Grouse populations, distributions, movements, core habitat and threats.	Comment noted. An additional alternative has been added to the EIS in order to address the most recent sage-grouse guidance.
25-8	There are eighteen inventoried roadless areas (IRAs) within the Bridgeport Decision Area totaling 409,152 acres. Three of these--Pine Grove South (88,753 acres), Excelsior Mountains (68,967 acres), and Huntoon (36,085 acres) -- received a very high rating for wilderness values in the Humboldt-Toiyabe 2008 inventory. Both the Pine Grove South (Wawoka) and the Excelsior Mountains have previously been recommended for wilderness designation by the Forest Service. Geothermal projects in these IRAs would have the effect of diminishing their wilderness value and could disqualify them for being considered in any future wilderness bill. We therefore request that these three IRAs not be considered for geothermal leasing.	The lease stipulation that states "no road construction would be allowed in IRAs" is sufficient for protection of IRAs.
25-9	While the DEIS does disclose the potential impacts on surface and ground water resources in a generic manner, there is little analysis of specific impacts nor the presentation of stipulations to protect aquatic features.	Future environmental review of proposed site-specific exploration and development would identify effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods

Comment Code	Comment	Response to Comment
		for protecting water resources. Springs would be addressed during site-specific surveys. There are no impacts on surface and ground water from leasing. Impacts will be assessed when a proposed action and alternatives are submitted for a specific project which is spatially and temporally defined sufficient to conduct an effects analysis. Information regarding the status of LCT, and CSF within the project area is included in the Biological Assessment. Consultation with US Fish and Wildlife Service will be completed prior to a decision being made. A 300-foot NSO buffer for Lahontan cutthroat trout would be applied. Future environmental review of proposed site-specific exploration and development would identify effects on aquatic resources and compliance with applicable laws and regulations. Where necessary, it would also identify methods for protecting aquatic resources. Springs would be addressed during site-specific surveys.
25-10	Additionally, there seems to be a lack of surveys of springs in the study area.	Resources issues related to these issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
25-11	Lastly, we find no information in the DEIS on most aquatic species, except Lahontan cutthroat trout, and on potential impacts of geothermal leasing and development on these species. These include endemic species, such as spring snails. Adequate information on water-dependent species should be obtained or required and protections of these species and their spring habitats should be specifically included in Alternative 2 and subsequent NEPA documents on geothermal leasing projects.	Protection of riparian and wetland habitat would be applied within 500 feet of riparian or wetland vegetation to protect the values and functions of these areas. Surveys would be completed for aquatic resources on a project-specific basis and additional protections commensurate with the activity applied if needed .
26-1	We, the undersigned, recommend that the Ely District Geothermal leasing study area be identified as lands closed to geothermal leasing, but that all other lands included in this EIS process go forward under the alternative number two.	Comment noted.

Comment Code	Comment	Response to Comment
26-2	We believe that this EIS process should have included the No Leasing or Development of Geothermal Resources on National Forest System Lands alternative. Not only does the NEPA process require this, but Alternative three (& no action alternative) does not preclude the possibility of geothermal leasing.	Chapter 1 discusses the purpose and need of the project, and Chapter 2 discusses the alternatives including alternatives considered but eliminated. A no leasing alternative would not be in conformance with the Forest Plan or Forest Service Mandates.
26-3	Section 3.9 states that this study is only concerned with effects to public lands in the planning area. A major concern of ours is the effect geothermal leasing in the Ely District study area could have on adjacent private lands in White River Valley.	Cumulative effects are addressed in Chapter 5 and address resource impacts for various regions of influence. Resources issues related to these issues would be discussed and analyzed in the site-specific environmental analysis for all proposed geothermal projects.
26-4	A general description of the Basin and Range aquifer system is presented in Section 3.9. However, it would seem that the authors of this EISD are not familiar with the BARCAS study (USGS 2007), as it applies to White Pine County, and White River Valley is particular. There are numerous contradictions between the two. (please note the literature we have included in the BARCAS study.)	The BARCAS study reference was added to Section 3.9.3, and Section 3.9 text was revised.
26-5	The last sentence on page 3-28 states: the groundwater beneath the decision areas occurs in unconsolidated sand and gravel aquifers. The map on page 3-30 also shows this same scenario. Geothermal resource water does not occur in an unconsolidated sand and gravel aquifer (the alluvial fill). If there is available geothermal water in the study area, it would be from a carbonate or volcanic aquifer.	The last section in 3.9 has been revised to reflect comment.
26-6	In addition to one hot spring very close to the study area, there are seven low temperature carbonate springs in the Preston and Lund area. Together, these springs flow over 25 CFS and irrigates over two thousand acres of prime	Comment Noted

Comment Code	Comment	Response to Comment
	farmland. This same carbonate flow system is probably contributing to the shallow alluvial aquifer that is pumped to irrigated several thousand acres of prime farmlands in the Preston and Lund area.	
26-7	<p>Page 3-86 section 3.15.3 states: there is no prime farmland data available for</p> <p>farmland in the Ely Geothermal Decision Area. How Hard Did They Look? Did They Visit The Area?</p>	This project is for geothermal leasing only. Site-specific analysis would be conducted when a geothermal project is proposed.
26-8	In addition to the cumulative impacts as discussed under the heading "Hydrology and Water Quality" on page 5-17, we are concerned about the investigative and development stage. Drilling either source wells or injection wells into a common carbonate system with our springs could cause irreparable damage.	Future environmental review of proposed site-specific exploration and development would identify effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting water resources.
26-9	<p>Page 4-52 states that a biological assessment is being prepared to analyze potential effects on federally listed and proposed species. Native to the carbonate springs is the listed "white River Spinedace" and three species of concern "Preston White River Springfish", "Speckled Dace" and "Desert Sucker".</p> <p>Note: the last paragraph on page 4-50 should be under 4.12.6 rather than 4.12.7.</p>	No federally listed or proposed species currently occur within the project area. Future environmental review of proposed site-specific exploration and development would identify effects on aquatic resources, including endemic fish species, and would be in compliance with applicable laws and regulations. If an area is leased in the future, further analysis would be done to insure proper protection of aquatic resources.
26-10	The map on page 3-103 shows most of the Ely Decision Area to be designated "Roadless". Considering the type of vehicles: drill rigs, flatbed trucks for hauling casing and drilling mud, cement trucks, etc, as well as earthmoving equipment to construct drill site pads, that would be accessing most of the area, it would be absurd to assume this area	This project is for geothermal leasing only and would not result in ground disturbing activities including the use or construction of roads. Site-specific analysis would be conducted when a geothermal project is proposed.

Comment Code	Comment	Response to Comment
	could retain a roadless designation if it were to be leased for geothermal production.	
26-11	In addition to our grave concern about our carbonate springs, we have some concerns for additional carbonate springs farther south in the White River Valley, such as Immigrant Springs, Butterfield Spring, Flag Springs, Hot Creek Spring and Moon River spring.	The project is for geothermal leasing only. However, future geothermal exploration and development have the potential to alter water resources. This would be an indirect effect on water resources from leasing because leasing could eventually lead to geothermal exploration and development. Because the location of future exploration and development is unknown, only general effects on water resources are discussed. Future environmental review of proposed site-specific exploration and development would identify effects on water resources and compliance with applicable water laws and regulations. Where necessary, it would also identify methods for protecting water resources. It is highly unlikely something 40 miles away would be impacted and, if the aquifer were that large, the impact would likely be immeasurable for years.
27-1	I am extremely concerned about the acreage of inventoried roadless areas in the Bridgeport Ranger District that is proposed in this DEIS. There are three that I feel should not be considered for geothermal leasing because they were rated as high in wilderness quality in the 2008 Humboldt-Toiyabe inventory of roadless areas. These are Pine Grove South (88,753 acres), Excelsior Mts. (68,967 acres) and Huntton (36,085 acres). Both Pine Grove South (Wawoka) and the Excelsior Mts. have previously been recommended by the Forest Service for wilderness. If any geothermal development were to take place in these areas, wilderness in the future could be ruled out as an option because of decrease in wilderness quality. Therefore, I request that these three inventoried roadless areas be eliminated for geothermal leasing in the final EIS.	The lease stipulation that states "no road construction would be allowed in IRAs" is sufficient for protection of IRAs.
27-2	I could find no mention of any aquatic species except Lahontan Cutthroat Trout although I am certain there are	As stated in Appendix A, protection of riparian and wetland habitat would be applied within 500 feet of riparian or

Comment Code	Comment	Response to Comment
	many species such as spring snails associated with the springs in the area which need to be protected. There needs to be some protection of these in the FEIS.	wetland vegetation to protect the values and functions of these areas. In addition, site-specific analysis would be conducted when a geothermal project is proposed.
27-3	The three areas listed not in the Bridgeport Ranger District are so small and isolated that I doubt whether geothermal development and transmission of the power would be economically viable. I am not sure why these were included.	The Purpose and Need are discussed in Chapter 1.
28-1	Wilderness impacts due to leasing.	Comment noted. Environmental Consequences are discussed in Chapter 4.
29-1	After reviewing the project details, it has been decided that the best way to protect areas of great concern to the Paiute people would be support Alternative number 2: Proposed Action with Enhanced Stipulations for Sage Grouse, and Traditional Cultural Properties and sacred sites.	All alternatives have identified issues relating to cultural resources and sacred sites as important resources.
29-2	We look forward to further consultation as projects arise under the exploration stage. There are still many concerns of an actual geothermal plant being constructed and the effects it will have on the surrounding land, water, animals and vegetation; much of which are used for food, medicine and spiritual purposes.	Every stage in the NEPA process for geothermal exploration or development would include tribal consultation so as to identify and consider effects to TCP's and sacred sites.